F 1

```
DDDDDDDDDDDD     EEEEEEEEEEEEEEE  BBBBBBBBBBBB     UUU         UUU     GGGGGGGGGGGG
DDDDDDDDDDDD     EEEEEEEEEEEEEEE  BBBBBBBBBBBB     UUU         UUU     GGGGGGGGGGGG
DDDDDDDDDDDD     EEEEEEEEEEEEEEE  BBBBBBBBBBBB     UUU         UUU     GGGGGGGGGGGG
DDD         DDD  EEE              BBB         BBB  UUU         UUU  GGG
DDD         DDD  EEE              BBB         BBB  UUU         UUU  GGG
DDD         DDD  EEE              BBB         BBB  UUU         UUU  GGG
DDD         DDD  EEE              BBB         BBB  UUU         UUU  GGG
DDD         DDD  EEE              BBB         BBB  UUU         UUU  GGG
DDD         DDD  EEE              BBB         BBB  UUU         UUU  GGG
DDD         DDD  EEEEEEEEEEEE     BBBBBBBBBBBB     UUU         UUU  GGG
DDD         DDD  EEEEEEEEEEEE     BBBBBBBBBBBB     UUU         UUU  GGG
DDD         DDD  EEEEEEEEEEEE     BBBBBBBBBBBB     UUU         UUU  GGG
DDD         DDD  EEE              BBB         BBB  UUU         UUU  GGG   GGGGGGGGG
DDD         DDD  EEE              BBB         BBB  UUU         UUU  GGG   GGGGGGGGG
DDD         DDD  EEE              BBB         BBB  UUU         UUU  GGG   GGGGGGGGG
DDD         DDD  EEE              BBB         BBB  UUU         UUU  GGG         GGG
DDD         DDD  EEE              BBB         BBB  UUU         UUU  GGG         GGG
DDD         DDD  EEE              BBB         BBB  UUU         UUU  GGG         GGG
DDDDDDDDDDDD     EEEEEEEEEEEEEEE  BBBBBBBBBBBB     UUUUUUUUUUUUUUU     GGGGGGGGG
DDDDDDDDDDDD     EEEEEEEEEEEEEEE  BBBBBBBBBBBB     UUUUUUUUUUUUUUU     GGGGGGGGG
DDDDDDDDDDDD     EEEEEEEEEEEEEEE  BBBBBBBBBBBB     UUUUUUUUUUUUUUU     GGGGGGGGG
```

J 11

```
**FILE**ID**DBGATSIGN








DDDDDDDD    BBBBBBBB      GGGGGGGG    AAAAAA    TTTTTTTTTT    SSSSSSSS    IIIIII      GGGGGGGG  NN      NN
DDDDDDDD    BBBBBBBB      GGGGGGGG    AAAAAA    TTTTTTTTTT    SSSSSSSS    IIIIII      GGGGGGGG  NN      NN
DD      DD  BB      BB  GG          AA      AA      TT      SS              II      GG          NN      NN
DD      DD  BB      BB  GG          AA      AA      TT      SS              II      GG          NN      NN
DD      DD  BB      BB  GG          AA      AA      TT      SS              II      GG          NNNN    NN
DD      DD  BB      BB  GG          AA      AA      TT      SS              II      GG          NNNN    NN
DD      DD  BBBBBBBB    GG          AA      AA      TT        SSSSSS        II      GG          NN  NN  NN
DD      DD  BBBBBBBB    GG          AA      AA      TT        SSSSSS        II      GG          NN  NN  NN
DD      DD  BB      BB  GG  GGGGGG  AAAAAAAAAA      TT              SS      II      GG  GGGGGG  NN    NNNN
DD      DD  BB      BB  GG  GGGGGG  AAAAAAAAAA      TT              SS      II      GG  GGGGGG  NN    NNNN
DD      DD  BB      BB  GG      GG  AA      AA      TT              SS      II      GG      GG  NN      NN      ....
DD      DD  BB      BB  GG      GG  AA      AA      TT              SS      II      GG      GG  NN      NN      ....
DDDDDDDD    BBBBBBBB      GGGGGG    AA      AA      TT      SSSSSSSS      IIIIII      GGGGGG    NN      NN      ....
DDDDDDDD    BBBBBBBB      GGGGGG    AA      AA      TT      SSSSSSSS      IIIIII      GGGGGG    NN      NN      ....


LL            IIIIII      SSSSSSSS
LL            IIIIII      SSSSSSSS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II        SSSSSS
LL              II        SSSSSS
LL              II              SS
LL              II              SS
LL              II              SS
LL              II              SS
LLLLLLLLLL    IIIIII    SSSSSSSS
LLLLLLLLLL    IIIIII    SSSSSSSS
```

```
0 MODULE DBGATSIGN (IDENT = 'V04-000') =
0
1 BEGIN
1
1 !
1 !****************************************************************************
1 !*                                                                          *
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1 !*                                                                          *
1 !*                                                                          *
1 !****************************************************************************
1 !
1 !
1 ! MODULE FUNCTION
1 !
1 !       This module contains the parse and execution networks to support the
1 !       commands having to do with command files (@, DECLARE, EXIT, EXITLOOP).
1 !       SPAWN and ATTACH are also in this module (for lack of a better
1 !       place to put them).
1 !
1 ! AUTHOR:       David Plummer, CREATION DATE: 3/28/80
1 !
1 ! MODIFIED BY:
1 !
1 !       R. Title        - Added SPAWN, ATTACH, DECLARE, EXITLOOP, and merged
1 !                         all of this into this one module.
1 !
1
1 REQUIRE 'SRC$:DBGPROLOG.REQ';
1
1 LIBRARY 'LIB$:DBGGEN.L32';
1
1 FORWARD ROUTINE
1     DBG$NPARSE_AT_SIGN,                       ! Parse indirect command file invocation
1     DBG$NEXECUTE_AT_SIGN,                     ! Execute indirect command file invocation
1     DBG$NPARSE_ATTACH,                        ! ATTACH command parse network
1     DBG$NEXECUTE_ATTACH,                      ! ATTACH command execute network
1     DBG$NPARSE_SPAWN,                         ! SPAWN command parse network
1     DBG$NEXECUTE_SPAWN,                       ! SPAWN command execution network
1     DBG$CONSTRUCT_PARAM_NAME,                 ! Builds name of form %Pi
1     DBG$PARSE_SPAWN,                          ! Interface from old languages
```

```
;      58          0191   1       GET_PARAM,                             ! Parses a parameter
;      59          0192   1       DBG$NEXECUTE_EXIT,                     ! Execution network for EXIT command
;      60          0193   1       DBG$NEXECUTE_EXITLOOP,                 ! Execution network for EXITLOOP
;      61          0194   1       DBG$NPARSE_EXIT,                       ! ATN parse network for EXIT command
;      62          0195   1       DBG$NPARSE_EXITLOOP,                   ! ATN parse network for EXITLOOP
;      63          0196   1       DBG$NPARSE_DECLARE,                    ! DECLARE parse network
;      64          0197   1       DBG$NEXECUTE_DECLARE;                  ! DECLARE execution network
;     66          0198   1 EXTERNAL ROUTINE
;     67          0199   1      DBG$DEF_PR_ENTRY,                        ! Procedure entry routine for @ procedures
;     68          0200   1      DBG$DEF_SYM_ADD,                         ! Adds a DEFINE symbol
;     69          0201   1      DBG$DEF_SYM_FIND,                        ! Locate a DEFINE symbol
;     70          0202   1      DBG$GET_MEMORY,                          ! Allocates permanent memory
;     71          0203   1      DBG$GET_TEMPMEM,                         ! Allocates and lists dynamic storage
;     72          0204   1      DBG$NCIS_ADD,                            ! Routine to add a node to the cis
;     73          0205   1      DBG$NCIS_OPENICF,                        ! Routine to connect an icf
;     74          0206   1      DBG$NCIS_REMOVE,                         ! Removes links from the command input stream
;     75          0207   1      DBG$NCOPY_DESC,                          ! Copy a descriptor
;     76          0208   1      DBG$NEWLINE: NOVALUE,                    ! Output routine
;     77          0209   1      DBG$NGET_SYMID,                          ! Obtain symid list
;     78          0210   1      DBG$NMAKE_ARG_VECT,                      ! Construct error message vector
;     79          0211   1      DBG$NMATCH,                              ! Match the next token
;     80          0212   1      DBG$NNEXT_WORD,                          ! Read next work of input
;     81          0213   1      DBG$NPARSE_ADDRESS,                      ! Parse an address expression
;     82          0214   1      DBG$NPARSE_EXPRESSION,                   ! Parse a language expression
;     83          0215   1      DBG$NREAD_NAME,                          ! Accept a DEFINE name
;     84          0216   1      DBG$NSAVE_BREAK_BUFFER,                  ! Parse a DEBUG command sequence
;     85          0217   1      DBG$NSAVE_DECIMAL_INTEGER,               ! Parse an integer
;     86          0218   1      DBG$NSAVE_FILESP,                        ! Saves a file specification string
;     87          0219   1      DBG$NSAVE_STRING,                        ! Pick up string
;     88          0220   1      DBG$NSYNTAX_ERROR,                       ! Construct a syntax error message
;     89          0221   1      DBG$PRINT: NOVALUE,                      ! Output routine
;     90          0222   1      DBG$SCR_SCREEN_NORMAL: NOVALUE,          ! Set screen to normal in screen mode
;     91          0223   1      DBG$STA_LOCK_SYMID: NOVALUE,             ! Lock symid list
;     92          0224   1      LIB$ATTACH,                              ! Do the actual ATTACH to a process
;     93          0225   1      LIB$FREE_EF,                             ! Free up and event-flag
;     94          0226   1      LIB$GET_EF,                              ! Allocate an event-flag
;     95          0227   1      LIB$SPAWN,                               ! Do the actual SPAWN of a subprocess
;     96          0228   1      SMG$SET_KEYPAD_MODE;                     ! Set terminal to numeric/application mode
;     97          0229   1
;     98          0230   1 EXTERNAL
;     99          0231   1      DBG$GB_KEYPAD_INPUT: BYTE,               ! Set if mode is KEYPAD
;    100          0232   1      DBG$GL_KEYBOARD_ID,                      ! Used by SMG$SET_KEYPAD_MODE
;    101          0233   1      DBG$GB_LANGUAGE: BYTE,                   ! The current language setting
;    102          0234   1      DBG$GB_RADIX     : VECTOR [3, BYTE],     ! Radix settings
;    103          0235   1      DBG$GB_DEF_OUT   : VECTOR [,BYTE],       !   "    " output configuration structure
;    104          0236   1      DBG$GL_LOGFAB    : BLOCK [,BYTE],        !   "    " FAB for log file
;    105          0237   1      DBG$GL_CISHEAD   : REF CIS$LINK,         !   "    " head of command input stream
;    106          0238   1      DBG$GL_EXIT_STATUS,                      ! Last known user error status
;    107          0239   1      DBG$GV_CONTROL: DBG$CONTROL_FLAGS,       ! DEBUG control bits
;    108          0240   1      DBG$GL_SMG_EXIT_HANDLER;                 ! Address of exit handler for SMG routines
;    109          0241   1
;    110          0242   1 LITERAL
;    111          0243   1      NOWAIT_FLAG = 0;                         ! Flag position for /NOWAIT
;    112          0244   1
;    113          0245   1 GLOBAL LITERAL
;    114          0246   1      DBG$K_MAX_PR_NESTING = 10;
;    115          0247   1
;    116          0248   1 GLOBAL
;    117          0249   1      DBG$GL_PR_NEST_LEVEL: INITIAL(0),        ! Level of nesting of @ procedures
;    118          0250   1      DBG$GL_PARAM_COUNT:                      ! Parameter count for each procedure
;    119          0251   1                  VECTOR[1+DBG$K_MAX_PR_NESTING]
;    120          0252   1                  INITIAL(REP 1+DBG$K_MAX_PR_NESTING OF (0));
;    121          0253   1
;    122          0254   1
;  123           0255  1 ! The following macro is just an abbreviation for some error-reporting
;  124           0256  1 ! code that occurs repeatedly
;  125           0257  1 !
;  126         M 0258  1 MACRO report_error =
;  127         M 0259  1     BEGIN
;  128         M 0260  1     .message_vect = (
;  129         M 0261  1         IF dbg$nmatch (.input_desc, dbg$cs_cr, 1)
;  130         M 0262  1         THEN
;  131         M 0263  1             dbg$nmake_arg_vect (dbg$_needmore)
;  132         M 0264  1         ELSE
;  133         M 0265  1             dbg$nsyntax_error (dbg$nnext_word (.input_desc)));
;  134         M 0266  1     RETURN sts$k_severe;
;  135           0267  1     END %;
```

```
1 GLOBAL ROUTINE DBG$NPARSE_AT_SIGN (INPUT_DESC, VERB_NODE, MESSAGE_VECT) =
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       Parses an @ filespec command. The @ has already been recognized in the routine
1 !       dbg$nparse_cmd network. This routine merely aquires the filespec string
1 !       and causes the noun node ( noun value ) field to point to the filespec which
1 !       is stored as a counted string in dynamically allocated storage.
1 !
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       input_desc -                    The present command line input descriptor
1 !
1 !       verb_node  -                    The already existing command verb node
1 !
1 !       message_vect -                  The address of a longword to contain the
1 !                                       address of a message argument vector
1 !
1 ! IMPLICIT INPUTS:
1 !
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !
1 !       On success, the appropriate command execution tree is constructed.
1 !
1 !       On failure, a message argument vector is constructed
1 !
1 ! ROUTINE VALUE:
1 !
1 !       An unsigned integer longword completion code
1 !
1 ! COMPLETION CODES:
1 !
1 !       sts$k_severe (4) -              Error in parsing
1 !
1 !       sts$k_success (1) -             Successful parse
1 !
1 ! SIDE EFFECTS:
1 !
1 !       None
1 !
1 !--
1
2     BEGIN
2
2     MAP
2       INPUT_DESC: REF dbg$stg_desc,
2       VERB_NODE : REF dbg$verb_node;
2
2     BIND
2       dbg$cs_comma            = UPLIT BYTE (1, dbg$k_comma),
2       dbg$cs_cr               = UPLIT BYTE (1, dbg$k_car_return),
2       dbg$cs_left_paren       = UPLIT BYTE (1, dbg$k_left_parenthesis),
2       dbg$cs_right_paren      = UPLIT BYTE (1, dbg$k_right_parenthesis);
```

```
;  194          0325  2
;  195          0326  2        LOCAL
;  196          0327  2            first_flag: BYTE,                ! True first time around loop that
;  197          0328  2                                             !     collect the parameters.
;  198          0329  2            link,                            ! Used for building linked lists
;  199          0330  2            noun_node: REF dbg$noun_node,    ! A noun node
;  200          0331  2            paren_flag: BYTE;                ! True if there is a parenthesized
;  201          0332  2                                             !     parameter list.
;  202          0333  2
;  203          0334  2        ! Create and link a noun node
;  204          0335  2        !
;  205          0336  2        noun_node = dbg$get_tempmem (dbg$k_noun_node_size);
;  206          0337  2        verb_node [dbg$l_verb_object_ptr] = .noun_node;
;  207          0338  2
;  208          0339  2        ! Get the filespec
;  209          0340  2        !
;  210          0341  2        IF NOT dbg$nsave_filesp (.input_desc, noun_node [dbg$l_noun_value], .message_vect)
;  211          0342  2        THEN
;  212          0343  2            RETURN sts$k_severe;
;  213          0344  2
;  214          0345  2        ! Check for end-of-line. In this case, there are no parameters so just
;  215          0346  2        ! return success.
;  216          0347  2        !
;  217          0348  2        IF dbg$nmatch (.input_desc, dbg$cs_cr, 1)
;  218          0349  2        OR .input_desc [dsc$w_length] EQL 0
;  219          0350  2        THEN
;  220          0351  2            RETURN sts$k_success;
;  221          0352  2
;  222          0353  2        ! Now pick up the parameter list, if one is present.
;  223          0354  2        !
;  224          0355  2        IF dbg$nmatch (.input_desc, dbg$cs_left_paren, 1)
;  225          0356  2        THEN
;  226          0357  2            paren_flag = TRUE
;  227          0358  2        ELSE
;  228          0359  2            paren_flag = FALSE;
;  229          0360  2
;  230          0361  2        ! Set a flag which is true only the first time around the loop.
;  231          0362  2        !
;  232          0363  2        first_flag = TRUE;
;  233          0364  2
;  234          0365  2        ! Loop through the list of parameters.
;  235          0366  2        !
;  236          0367  2        WHILE TRUE DO
;  237          0368  3            BEGIN
;  238          0369  3
;  239          0370  3            ! Allocate space for a new noun node.
;  240          0371  3            !
;  241          0372  3            link = noun_node [dbg$l_noun_link];
;  242          0373  3            noun_node = dbg$get_tempmem (dbg$k_noun_node_size);
;  243          0374  3
;  244          0375  3            ! Attempt to read a parameter.
;  245          0376  3            !
;  246          0377  3            IF NOT get_param (.input_desc, .paren_flag,
;  247          0378  3                    noun_node [dbg$l_noun_value])
;  248          0379  3            THEN
;  249          0380  4                BEGIN
;  250          0381  4
```

```
4              ! The only way this can legally fail is @FOO ()
4              ! (no parameters). Check for this.
4              !
4              IF .first_flag
4              THEN
4
4                  ! If there had been an opening paren, then make sure we
4                  ! collect the closing paren
4                  !
4                  IF .paren_flag
4                  THEN
4                      IF NOT dbg$nmatch (.input_desc, dbg$cs_right_paren, 1)
4                      THEN
5                          BEGIN
5                          .message_vect = dbg$nmake_arg_vect (dbg$_unmtchparn);
5                          RETURN sts$k_severe;
5                          END
4                      ELSE
4                          EXITLOOP;
4
4              ! If we get here, we have read a separating comma, but we have
4              ! failed to read the next parameter (E.G., @FOO A,)
4              ! This is therefore an error.
4              !
4              .message_vect =
5                      (IF dbg$nmatch (.input_desc, dbg$cs_cr, 1)
5                       THEN
5                           dbg$nmake_arg_vect (dbg$_needmore)
5                       ELSE
4                           dbg$nsyntax_error (dbg$nnext_word (.input_desc)));
4              RETURN sts$k_severe;
3              END;
3
3          ! Set first_flag to FALSE for next time around.
3          !
3          first_flag = FALSE;
3
3          ! We must have succeeded in reading a parameter. Thus, link in
3          ! the noun node.
3          !
3          .link = .noun_node;
3
3          ! Attempt to read a comma, which separates parameters.
3          !
3          IF NOT dbg$nmatch (.input_desc, dbg$cs_comma, 1)
3          THEN
3
3              ! If we fail, check for the closing paren, if an opening
3              ! paren was present.
3              !
3              IF .paren_flag
3              THEN
3                  IF NOT dbg$nmatch (.input_desc, dbg$cs_right_paren, 1)
3                  THEN
4                      BEGIN
4                      .message_vect = dbg$nmake_arg_vect (dbg$_unmtchparn);
4                      RETURN sts$k_severe;
```

```
;  308        0439 4                    END
;  309        0440 3                 ELSE
;  310        0441 3                    EXITLOOP
;  311        0442 3
;  312        0443 3              ! The lack of a separating comma indicates the end of the
;  313        0444 3              ! parameter list, so we just exit the loop.
;  314        0445 3              !
;  315        0446 3              ELSE
;  316        0447 3                 EXITLOOP;
;  317        0448 3
;  318        0449 2           END; ! of WHILE loop
;  319        0450 2
;  320        0451 2        ! The command execution tree, containing a noun node with the filespec
;  321        0452 2        ! and a noun node for each parameter, has been constructed. Thus, we
;  322        0453 2        ! just return success.
;  323        0454 2        !
;  324        0455 2        RETURN sts$k_success;
;  325        0456 2
;  326        0457 1        END;                          ! End of dbg$nparse_at_sign


                                                           .TITLE  DBGATSIGN
                                                           .IDENT  \V04-000\

                                                           .PSECT  DBG$PLIT,NOWRT,  SHR,  PIC,0

                                 2C  01  00000 P.AAA:      .BYTE   1, 44                                          ;
                                 0D  01  00002 P.AAB:      .BYTE   1, 13                                          ;
                                 28  01  00004 P.AAC:      .BYTE   1, 40                                          ;
                                 29  01  00006 P.AAD:      .BYTE   1, 41                                          ;

                                                           .PSECT  DBG$GLOBAL,NOEXE,  PIC,2

                           00000000  00000 DBG$GL_PR_NEST_LEVEL::
                                                           .LONG   0                                              ;
                           00000000# 00004 DBG$GL_PARAM_COUNT::
                                                           .LONG   0[11]                                          ;

                                                   DBG$K_MAX_PR_NESTING==
                                                                        10
                                                   DBG$CS_COMMA=        P.AAA
                                                   DBG$CS_CR=           P.AAB
                                                   DBG$CS_LEFT_PAREN=   P.AAC
                                                   DBG$CS_RIGHT_PAREN=  P.AAD
                                                           .EXTRN  DBG$DEF_PR_ENTRY
                                                           .EXTRN  DBG$DEF_SYM_ADD
                                                           .EXTRN  DBG$DEF_SYM_FIND
                                                           .EXTRN  DBG$GET_MEMORY, DBG$GET_TEMPMEM
                                                           .EXTRN  DBG$NCIS_ADD, DBG$NCIS_OPENICF
                                                           .EXTRN  DBG$NCIS_REMOVE
                                                           .EXTRN  DBG$NCOPY_DESC, DBG$NEWLINE
                                                           .EXTRN  DBG$NGET_SYMID, DBG$NMAKE_ARG_VECT
                                                           .EXTRN  DBG$NMATCH, DBG$NNEXT_WORD
                                                           .EXTRN  DBG$NPARSE_ADDRESS
                                                           .EXTRN  DBG$NPARSE_EXPRESSION
                                                           .EXTRN  DBG$NREAD_NAME, DBG$NSAVE_BREAK_BUFFER
                                                           .EXTRN  DBG$NSAVE_DECIMAL_INTEGER
```

```
                                          .EXTRN  DBG$NSAVE_FILESP
                                          .EXTRN  DBG$NSAVE_STRING
                                          .EXTRN  DBG$NSYNTAX_ERROR
                                          .EXTRN  DBG$PRINT, DBG$SCR_SCREEN_NORMAL
                                          .EXTRN  DBG$STA_LOCK_SYMID
                                          .EXTRN  LIB$ATTACH, LIB$FREE_EF
                                          .EXTRN  LIB$GET_EF, LIB$SPAWN
                                          .EXTRN  SMG$SET_KEYPAD_MODE
                                          .EXTRN  DBG$GB_KEYPAD_INPUT
                                          .EXTRN  DBG$GL_KEYBOARD_ID
                                          .EXTRN  DBG$GB_LANGUAGE
                                          .EXTRN  DBG$GB_RADIX, DBG$GB_DEF_OUT
                                          .EXTRN  DBG$GL_LOGFAB, DBG$GL_CISHEAD
                                          .EXTRN  DBG$GL_EXIT_STATUS
                                          .EXTRN  DBG$GV_CONTROL, DBG$GL_SMG_EXIT_HANDLER

                                          .PSECT  DBG$CODE,NOWRT,  SHR,  PIC,0

                        03FC 00000        .ENTRY  DBG$NPARSE_AT_SIGN, Save R2,R3,R4,R5,R6,R7,-; 0268
                                                  R8,R9                                       ;
          59 00000000G 00 9E 00002        MOVAB   DBG$GET_TEMPMEM, R9                         ;
          58 00000000G 00 9E 00009        MOVAB   DBG$NMATCH, R8                              ;
          57 00000000' EF 9E 00010        MOVAB   DBG$CS_CR, R7                               ;
                       04 DD 00017        PUSHL   #4                                          ; 0336
          69           01 FB 00019        CALLS   #1, DBG$GET_TEMPMEM                         ;
          53           50 D0 0001C        MOVL    R0, NOUN_NODE                               ;
          50        08 AC D0 0001F        MOVL    VERB_NODE, R0                               ; 0337
       08 A0           53 D0 00023        MOVL    NOUN_NODE, 8(R0)                            ;
                    0C AC DD 00027        PUSHL   MESSAGE_VECT                                ; 0341
                       53 DD 0002A        PUSHL   NOUN_NODE                                   ;
          52        04 AC D0 0002C        MOVL    INPUT_DESC, R2                              ;
                       52 DD 00030        PUSHL   R2                                          ;
00000000G 00           03 FB 00032        CALLS   #3, DBG$NSAVE_FILESP                        ;
          03           50 E8 00039        BLBS    R0, 1$                                      ;
                     00A6 31 0003C        BRW     13$                                         ;
                       01 DD 0003F 1$:    PUSHL   #1                                          ; 0348
                  0084 8F BB 00041        PUSHR   #^M<R2,R7>                                  ;
          68           03 FB 00045        CALLS   #3, DBG$NMATCH                              ;
          03           50 E9 00048        BLBC    R0, 3$                                      ;
                     009B 31 0004B 2$:    BRW     14$                                         ;
                       62 B5 0004E 3$:    TSTW    (R2)                                        ; 0349
                       F9 13 00050        BEQL    2$                                          ;
                       01 DD 00052        PUSHL   #1                                          ; 0355
                    02 A7 9F 00054        PUSHAB  DBG$CS_LEFT_PAREN                           ;
                       52 DD 00057        PUSHL   R2                                          ;
          68           03 FB 00059        CALLS   #3, DBG$NMATCH                              ;
          05           50 E9 0005C        BLBC    R0, 4$                                      ;
          54           01 90 0005F        MOVB    #1, PAREN_FLAG                              ; 0357
                       02 11 00062        BRB     5$                                          ;
                       54 94 00064 4$:    CLRB    PAREN_FLAG                                  ; 0359
          55           01 90 00066 5$:    MOVB    #1, FIRST_FLAG                              ; 0363
          56        08 A3 9E 00069 6$:    MOVAB   8(R3), LINK                                 ; 0372
                       04 DD 0006D        PUSHL   #4                                          ; 0373
          69           01 FB 0006F        CALLS   #1, DBG$GET_TEMPMEM                         ;
          53           50 D0 00072        MOVL    R0, NOUN_NODE                               ;
                       53 DD 00075        PUSHL   NOUN_NODE                                   ; 0378
          7E           54 9A 00077        MOVZBL  PAREN_FLAG, -(SP)                           ;
```

```
                         52  DD 0007A        PUSHL   R2                          ;
    0000V  CF            03  FB 0007C        CALLS   #3, GET_PARAM               ;
           2E            50  E8 00081        BLBS    R0, 9$                      ;
           03            55  E9 00084        BLBC    FIRST_FLAG, 7$              ; 0385
           3D            54  E8 00087        BLBS    PAREN_FLAG, 10$             ; 0391
                         01  DD 0008A 7$:    PUSHL   #1                          ; 0407
                   0084  8F  BB 0008C        PUSHR   #^M<R2,R7>                  ;
           68            03  FB 00090        CALLS   #3, DBG$NMATCH              ;
           08            50  E9 00093        BLBC    R0, 8$                      ;
               000280D0  8F  DD 00096        PUSHL   #164048                     ; 0409
                         3C  11 0009C        BRB     11$                         ;
                         52  DD 0009E 8$:    PUSHL   R2                          ; 0411
00000000G  00            01  FB 000A0        CALLS   #1, DBG$NNEXT_WORD          ;
                         50  DD 000A7        PUSHL   R0                          ;
00000000G  00            01  FB 000A9        CALLS   #1, DBG$NSYNTAX_ERROR       ;
                         2F  11 000B0        BRB     12$                         ; 0407
                         55  94 000B2 9$:    CLRB    FIRST_FLAG                  ; 0417
           66            53  D0 000B4        MOVL    NOUN_NODE, (LINK)           ; 0422
                         01  DD 000B7        PUSHL   #1                          ; 0426
                     FE  A7  9F 000B9        PUSHAB  DBG$CS_COMMA                ;
                         52  DD 000BC        PUSHL   R2                          ;
           68            03  FB 000BE        CALLS   #3, DBG$NMATCH              ;
           A5            50  E8 000C1        BLBS    R0, 6$                      ;
           22            54  E9 000C4        BLBC    PAREN_FLAG, 14$             ; 0432
                         01  DD 000C7 10$:   PUSHL   #1                          ; 0434
                     04  A7  9F 000C9        PUSHAB  DBG$CS_RIGHT_PAREN          ;
                         52  DD 000CC        PUSHL   R2                          ;
           68            03  FB 000CE        CALLS   #3, DBG$NMATCH              ;
           15            50  E8 000D1        BLBS    R0, 14$                     ;
               000287D0  8F  DD 000D4        PUSHL   #165840                     ; 0437
00000000G  00            01  FB 000DA 11$:   CALLS   #1, DBG$NMAKE_ARG_VECT      ;
       0C  BC            50  D0 000E1 12$:   MOVL    R0, @MESSAGE_VECT           ;
           50            04  D0 000E5 13$:   MOVL    #4, R0                      ; 0438
                             04 000E8        RET                                 ;
           50            01  D0 000E9 14$:   MOVL    #1, R0                      ; 0455
                             04 000EC        RET                                 ; 0457

; Routine Size:  237 bytes,    Routine Base:  DBG$CODE + 0000

;  327          0458  1
```

```
  1 GLOBAL ROUTINE DBG$NEXECUTE_AT_SIGN (VERB_NODE, MESSAGE_VECT) =
  1 !
  1 ! FUNCTION
  1 !       This routine begins execution of an @ filespec command.  That is, a FAB
  1 !       and a RAB are allocated for the indirect command file, and calls are
  1 !       made to add the file to the command input string and connect the file.
  1 !
  1 ! INPUTS
  1 !       VERB_NODE - The command verb node which is the start of the command
  1 !                 execution tree.
  1 !
  1 !       MESSAGE_VECT - The address of a longword to contain the address of
  1 !                 a message argument vector.  On failure of this routine,
  1 !                 a message argument vector is returned to this parameter.
  1 !
  1 ! OUTPUTS
  1 !       An unsigned integer longword completion code is returned as the routine
  1 !       value:
  1 !
  1 !           STS$K_SUCCESS (1) - Indicates the file was created and connected
  1 !
  1 !           STS$K_SEVERE (4) -  Failure, file not created. Message argument vector returned
  1 !
  1
  2     BEGIN
  2
  2     BIND
  2         DEFICF_NAME     = UPLIT BYTE ('DEBUG.COM'),
  2         DEFICF_SIZE     = %CHARCOUNT ('DEBUG.COM');
  2
  2     MAP
  2         VERB_NODE: REF DBG$VERB_NODE;    ! Pointer to input Verb Node
  2
  2     LOCAL
  2         FAB_PTR: REF $FAB_DECL,          ! Pointer to ICF FAB
  2         NOUN_NODE: REF DBG$NOUN_NODE,    ! Pointer to command Noun Node
  2         PARAM_COUNT,                     ! Count of number of parameters
  2         PARAM_NAME: REF VECTOR[,BYTE],   ! Pointer to ASCIC name of parameter
  2         RAB_PTR: REF $RAB_DECL,          ! Pointer to ICF RAB
  2         REPLACED_FLAG,                   ! Returned symbol-replaced flag from
  2                                          !       DBG$DEF_SYM_ADD (value not used)
  2         VALARRAY: REF VECTOR[,LONG],     ! Pointer to value field in the Value
  2                                          !       Descriptor for %PARCNT
  2         VALPTR: REF DBG$VALDESC;         ! Pointer to Value Descriptor we build
  2
  2
  2
  2     ! Obtain the Noun Node for the file name of the indirect command file.
  2     !
  2     NOUN_NODE = .VERB_NODE[DBG$L_VERB_OBJECT_PTR];
  2
  2
  2     ! Allocate a FAB and a RAB for the command file and initialize them.
  2     !
  2     FAB_PTR = DBG$GET_MEMORY ((FAB$C_BLN + 3) / %UPVAL);
  2     RAB_PTR = DBG$GET_MEMORY ((RAB$C_BLN + 3) / %UPVAL);
P 2     $FAB_INIT (FAB=.FAB_PTR, FAC=GET, FNA=.NOUN_NODE[DBG$L_NOUN_VALUE] + 1,
           FNS=.(.NOUN_NODE [DBG$L_NOUN_VALUE]) <0, 8, 0>,
           DNA=DEFICF_NAME, DNS=DEFICF_SIZE);
$RAB_INIT (RAB=.RAB_PTR, FAB=.FAB_PTR);


! Place the ICF on the command input stream.
!
IF NOT DBG$NCIS_ADD(.RAB_PTR, 0, CIS_RAB, 0, 0, 0, .MESSAGE_VECT)
THEN
    RETURN STS$K_SEVERE;


! Set up the local define list for the procedure.
!
IF NOT DBG$DEF_PR_ENTRY(.MESSAGE_VECT)
THEN
    RETURN STS$K_SEVERE;


! Add the parameters to the local define list.  To do this, we loop through
! the remaining Noun Nodes to get the parameter pointers.
!
PARAM_COUNT = 0;
NOUN_NODE = .NOUN_NODE[DBG$L_NOUN_LINK];
WHILE .NOUN_NODE NEQ 0 DO
    BEGIN


    ! Increment the parameter count to give the parameter number of the
    ! present parameter.  Then obtain the name for this parameter and add
    ! the parameter to the parameter list for the current command file.
    !
    PARAM_COUNT = .PARAM_COUNT + 1;
    IF NOT DBG$CONSTRUCT_PARAM_NAME(.PARAM_COUNT, PARAM_NAME, TRUE,
                                                             .MESSAGE_VECT)
    THEN
        RETURN STS$K_SEVERE;

    IF NOT DBG$DEF_SYM_ADD(.PARAM_NAME, DEFINE_PARAMETER,
           .NOUN_NODE[DBG$L_NOUN_VALUE], FALSE,
           REPLACED_FLAG, .MESSAGE_VECT)
    THEN
        RETURN STS$K_SEVERE;

    IF .REPLACED_FLAG THEN $DBG_ERROR('DBGATSIGN\DBG$NEXECUTE_AT_SIGN');


    ! Get the Noun Node for the next parameter and loop.
    !
    NOUN_NODE = .NOUN_NODE[DBG$L_NOUN_LINK];
    END;


! Build a Value Descriptor to hold the integer value that gives the number
! of parameters to the indirect command file we are opening.  Then create
! a local DEFINEd symbol called %PARCNT in the scope of this indirect com-
! mand file.  This symbol gives the number of parameters to the indirect
```

```
;  443          0573  2      ! command file when referenced by the user within the command file.
;  444          0574  2      !
;  445          0575  2      VALPTR = DBG$GET_MEMORY(DBG$K_VALDESC_BASE_SIZE + 4);
;  446          0576  2      VALPTR[DBG$B_DHDR_TYPE] = DBG$K_VALUE_DESC;
;  447          0577  2      VALPTR[DBG$W_DHDR_LENGTH] = (DBG$K_VA[DESC_BASE_SIZE + 4)*%UPVAL;
;  448          0578  2      VALPTR[DBG$B_DHDR_FCODE] = RST$K_TYPE_ATOMIC;
;  449          0579  2      VALPTR[DBG$B_DHDR_KIND] = RST$K_DATA;
;  450          0580  2      VALPTR[DBG$B_DHDR_LANG] = .DBG$GB_LANGUAGE;
;  451          0581  2      VALPTR[DBG$B_VALUE_CLASS] = DSC$K_CLASS_S;
;  452          0582  2      VALPTR[DBG$B_VALUE_DTYPE] = DSC$K_DTYPE_L;
;  453          0583  2      VALPTR[DBG$W_VALUE_LENGTH] = 4;
;  454          0584  2      VALPTR[DBG$L_VALUE_POINTER] = VALPTR[DBG$A_VALUE_ADDRESS];
;  455          0585  2      VALARRAY = VALPTR[DBG$A_VALUE_ADDRESS];
;  456          0586  2      VALARRAY[0] = .PARAM_COUNT;
;  457          0587  2      PARAM_NAME = DBG$GET_MEMORY(2);
;  458          0588  2      CH$MOVE(8, UPLIT BYTE(%ASCIC '%PARCNT'), PARAM_NAME[0]);
;  459          0589  2      IF NOT DBG$DEF_SYM_ADD(.PARAM_NAME, DEFINE_VALUE, .VALPTR,
;  460          0590  2                                         FALSE, REPLACED_FLAG, .MESSAGE_VECT)
;  461          0591  2      THEN
;  462          0592  2          RETURN STS$K_SEVERE;
;  463          0593  2
;  464          0594  2
;  465          0595  2      ! Open the specified indirect command file as the current input file.
;  466          0596  2      ! Then return.
;  467          0597  2      !
;  468          0598  2      IF NOT DBG$NCIS_OPENICF(.MESSAGE_VECT) THEN RETURN STS$K_SEVERE;
;  469          0599  2      RETURN STS$K_SUCCESS;
;  470          0600  2
;  471          0601  1      END;



                                                                  .PSECT  DBG$PLIT,NOWRT,  SHR,  PIC,0

                           4D  4F  43  2E  47  55  42  45  44  00008 P.AAE:  .ASCII  \DEBUG.COM\                            ;
24  47  42  44  5C  4E  47  49  53  54  41  47  42  44  1E  00011 P.AAF:  .ASCII  <30>\DBGATSIGN\<92>\DBG$NEXECUTE_AT_SI\   ;
    49  53  5F  54  41  5F  45  54  55  43  45  58  45  4E  00020                                                           ;
                                                   4E  47  0002E         .ASCII  \GN\                                   ;
                              54  4E  43  52  41  50  25  07  00030 P.AAG:  .ASCII  <7>\%PARCNT\                             ;

                                                           DEFICF_NAME=        P.AAE
                                                           DEFICF_SIZE=        9


                                                                  .PSECT  DBG$CODE,NOWRT,  SHR,  PIC,0

                                            0FFC 00000            .ENTRY  DBG$NEXECUTE_AT_SIGN, Save R2,R3,R4,R5,R6,- ; 0459
                                                                          R7,R8,R9,R10,R11                            ;
                         5B 00000000G   00   9E 00002            MOVAB   DBG$DEF_SYM_ADD, R11                        ;
                         5A 00000000'   EF   9E 00009            MOVAB   DEFICF_NAME, R10                            ;
                         59 00000000G   00   9E 00010            MOVAB   DBG$GET_MEMORY, R9                          ;
                         5E             08   C2 00017            SUBL2   #8, SP                                      ;
                         50        04   AC   D0 0001A            MOVL    VERB_NODE, R0                               ; 0508
                         58        08   A0   D0 0001E            MOVL    8(R0), NOUN_NODE                            ;
                                        14   DD 00022            PUSHL   #20                                         ; 0513
                         69             01   FB 00024            CALLS   #1, DBG$GET_MEMORY                          ;
                         56             50   D0 00027            MOVL    R0, FAB_PTR                                 ;
```

```
                                        11  DD 0002A       PUSHL   #17                                       ; 0514
                              69        01  FB 0002C       CALLS   #1, DBG$GET_MEMORY                        ;
                              57        50  D0 0002F       MOVL    R0, RAB_PTR                               ;
0050   8F        00           6E        00  2C 00032       MOVC5   #0, (SP), #0, #80, (FAB_PTR)              ; 0517
                                        66     00039
                              66   5003 8F  B0 0003A       MOVW    #20483, (FAB_PTR)                         ;
                           16 A6        02  90 0003F       MOVB    #2, 22(FAB_PTR)                           ;
                           1F A6        02  90 00043       MOVB    #2, 31(FAB_PTR)                           ;
             2C  A6           68        01  C1 00047       ADDL3   #1, (NOUN_NODE), 44(FAB_PTR)              ;
                           30 A6        6A  9E 0004C       MOVAB   DEFICF_NAME, 48(FAB_PTR)                  ;
                           34 A6     00 B8  90 00050       MOVB    @0(NOUN_NODE), 52(FAB_PTR)                ;
                           35 A6        09  90 00055       MOVB    #9, 53(FAB_PTR)                           ;
0044   8F        00           6E        00  2C 00059       MOVC5   #0, (SP), #0, #68, (RAB_PTR)              ; 0518
                                        67     00060
                              67   4401 8F  B0 00061       MOVW    #17409, (RAB_PTR)                         ;
                           3C A7        56  D0 00066       MOVL    FAB_PTR, 60(RAB_PTR)                      ;
                              56     08 AC  D0 0006A       MOVL    MESSAGE_VECT, R6                          ; 0523
                                        56  DD 0006E       PUSHL   R6                                        ;
                                        7E  7C 00070       CLRQ    -(SP)                                     ;
                              7E        01  7D 00072       MOVQ    #1, -(SP)                                 ;
                                        7E  D4 00075       CLRL    -(SP)                                     ;
                                        57  DD 00077       PUSHL   RAB_PTR                                   ;
                    00000000G 00        07  FB 00079       CALLS   #7, DBG$NCIS_ADD                          ;
                              38        50  E9 00080       BLBC    R0, 2$                                    ;
                                        56  DD 00083       PUSHL   R6                                        ; 0530
                    00000000G 00        01  FB 00085       CALLS   #1, DBG$DEF_PR_ENTRY                      ;
                              2C        50  E9 0008C       BLBC    R0, 2$                                    ;
                                        52  D4 0008F       CLRL    PARAM_COUNT                               ; 0538
                              58     08 A8  D0 00091 1$:   MOVL    8(NOUN_NODE), NOUN_NODE                   ; 0539
                                        3F  13 00095       BEQL    3$                                        ; 0540
                                        52  D6 00097       INCL    PARAM_COUNT                               ; 0548
                                        56  DD 00099       PUSHL   R6                                        ; 0550
                                        01  DD 0009B       PUSHL   #1                                        ; 0549
                                     08 AE  9F 0009D       PUSHAB  PARAM_NAME                                ;
                                        52  DD 000A0       PUSHL   PARAM_COUNT                               ;
                        0000V CF        04  FB 000A2       CALLS   #4, DBG$CONSTRUCT_PARAM_NAME              ;
                              7C        50  E9 000A7       BLBC    R0, 4$                                    ;
                                        56  DD 000AA       PUSHL   R6                                        ; 0556
                                     08 AE  9F 000AC       PUSHAB  REPLACED_FLAG                             ; 0554
                                        7E  D4 000AF       CLRL    -(SP)                                     ;
                                        68  DD 000B1       PUSHL   (NOUN_NODE)                               ; 0555
                                        06  DD 000B3       PUSHL   #6                                        ; 0554
                                     14 AE  DD 000B5       PUSHL   PARAM_NAME                                ;
                              6B        06  FB 000B8       CALLS   #6, DBG$DEF_SYM_ADD                       ;
                              77        50  E9 000BB 2$:   BLBC    R0, 5$                                    ;
                              CF     04 AE  E9 000BE       BLBC    REPLACED_FLAG, 1$                         ; 0560
                                     09 AA  9F 000C2       PUSHAB  P.AAF                                     ;
                                        01  DD 000C5       PUSHL   #1                                        ;
                               00028362 8F  DD 000C7       PUSHL   #164706                                   ;
                    00000000G 00        03  FB 000CD       CALLS   #3, LIB$SIGNAL                            ;
                                        BB  11 000D4       BRB     1$                                        ; 0565
                                        0C  DD 000D6 3$:   PUSHL   #12                                       ; 0575
                              69        01  FB 000D8       CALLS   #1, DBG$GET_MEMORY                        ;
                              57        50  D0 000DB       MOVL    R0, VALPTR                                ;
                           02 A7     7A 8F  90 000DE       MOVB    #122, 2(VALPTR)                           ; 0576
                              67        30  B0 000E3       MOVW    #48, (VALPTR)                             ; 0577
                           06 A7   0602 8F  B0 000E6       MOVW    #1538, 6(VALPTR)                          ; 0578
```

```
                      03  A7 00000000G    00  90 000EC          MOVB    DBG$GB_LANGUAGE, 3(VALPTR)          ; 0580
                      14  A7 01080004     8F  D0 000F4          MOVL    #17301508, 20(VALPTR)               ; 0583
                          50          20  A7  9E 000FC          MOVAB   32(R7), R0                          ; 0584
                      18  A7              50  D0 00100          MOVL    R0, 24(VALPTR)                      ;
                          60              52  D0 00104          MOVL    PARAM_COUNT, (VALARRAY)             ; 0586
                                          02  DD 00107          PUSHL   #2                                  ; 0587
                          69              01  FB 00109          CALLS   #1, DBG$GET_MEMORY                  ;
                          6E              50  D0 0010C          MOVL    R0, PARAM_NAME                      ;
      00    BE        28  AA              08  28 0010F          MOVC3   #8, P.AAG, @PARAM_NAME              ; 0588
                                          56  DD 00115          PUSHL   R6                                  ; 0590
                                      08  AE  9F 00117          PUSHAB  REPLACED_FLAG                       ; 0589
                                          7E  D4 0011A          CLRL    -(SP)                               ;
                                          57  DD 0011C          PUSHL   VALPTR                              ;
                                          05  DD 0011E          PUSHL   #5                                  ;
                                      14  AE  DD 00120          PUSHL   PARAM_NAME                          ;
                          6B              06  FB 00123          CALLS   #6, DBG$DEF_SYM_ADD                 ;
                          0C              50  E9 00126 4$:      BLBC    R0, 5$                              ;
                                          56  DD 00129          PUSHL   R6                                  ; 0598
               00000000G  00              01  FB 0012B          CALLS   #1, DBG$NCIS_OPENICF                ;
                          04              50  E8 00132          BLBS    R0, 6$                              ;
                          50              04  D0 00135 5$:      MOVL    #4, R0                              ;
                                              04 00138          RET                                         ;
                          50              01  D0 00139 6$:      MOVL    #1, R0                              ; 0599
                                              04 0013C          RET                                         ; 0601

; Routine Size:  317 bytes,    Routine Base:  DBG$CODE + 00ED
;  473        0602  1 GLOBAL ROUTINE DBG$NPARSE_ATTACH (INPUT_DESC, VERB_NODE, MESSAGE_VECT) =
;  474        0603  1 !
;  475        0604  1 ! FUNCTION
;  476        0605  1 !       Parses the ATTACH command. The "ATTACH" has already been
;  477        0606  1 !       recognized by the top-level parse routine. This routine picks
;  478        0607  1 !       up the integer argument and constructs a command execution tree.
;  479        0608  1 !       The tree has the verb node for ATTACH, and a noun node with
;  480        0609  1 !       the integer argument.
;  481        0610  1 !
;  482        0611  1 ! INPUTS
;  483        0612  1 !       INPUT_DESC      - A string descriptor for the remaining command line
;  484        0613  1 !
;  485        0614  1 !       VERB_NODE       - The already existing verb node.
;  486        0615  1 !
;  487        0616  1 !       MESSAGE_VECT    - The address of a message argument vector.
;  488        0617  1 !
;  489        0618  1 ! OUTPUTS
;  490        0619  1 !       The return value is one of:
;  491        0620  1 !               STS$K_SUCCESS   - Success. A command execution tree was
;  492        0621  1 !                                 constructed.
;  493        0622  1 !               STS$K_SEVERE    - Failure. An error message vector is
;  494        0623  1 !                                 constructed.
;  495        0624  1 !
;  496        0625  1
;  497        0626  2     BEGIN
;  498        0627  2
;  499        0628  2     MAP
;  500        0629  2         INPUT_DESC: REF DBG$STG_DESC,
;  501        0630  2         VERB_NODE: REF DBG$VERB_NODE;
;  502        0631  2
;  503        0632  2     BIND
;  504        0633  2         DBG$CS_CR       = UPLIT BYTE (1, DBG$K_CAR_RETURN);
;  505        0634  2
;  506        0635  2
;  507        0636  2
;  508        0637  2     ! Check for end-of-line. This is an error.
;  509        0638  2     !
;  510        0639  2     IF .INPUT_DESC [DSC$W_LENGTH] EQL 0
;  511        0640  2     THEN
;  512        0641  3         BEGIN
;  513        0642  3         .MESSAGE_VECT = DBG$NMAKE_ARG_VECT (DBG$_NEEDMORE);
;  514        0643  3         RETURN STS$K_SEVERE;
;  515        0644  2         END;
;  516        0645  2
;  517        0646  2     IF DBG$NMATCH (.INPUT_DESC, DBG$CS_CR, 1)
;  518        0647  2     THEN
;  519        0648  3         BEGIN
;  520        0649  3         .MESSAGE_VECT = DBG$NMAKE_ARG_VECT (DBG$_NEEDMORE);
;  521        0650  3         RETURN STS$K_SEVERE;
;  522        0651  2         END;
;  523        0652  2
;  524        0653  2
;  525        0654  2     ! Pick up the string with the process name. Put a pointer to the
;  526        0655  2     ! string right in the verb node.
;  527        0656  2     !
;  528        0657  2     IF NOT DBG$NSAVE_STRING(.INPUT_DESC,
;  529        0658  2                 VERB_NODE [DBG$L_VERB_ADVERB_PTR], .MESSAGE_VECT)
;  530          0659  2         THEN
;  531          0660  2             RETURN STS$K_SEVERE;
;  532          0661  2
;  533          0662  2
;  534          0663  2         ! Return success.
;  535          0664  2         !
;  536          0665  2         RETURN STS$K_SUCCESS;
;  537          0666  1         END;



                                                            .PSECT  DBG$PLIT,NOWRT,  SHR,  PIC,0

                                            0D  01 00038 P.AAH: .BYTE   1, 13                         ;

                                                       DBG$CS_CR=           P.AAH


                                                            .PSECT  DBG$CODE,NOWRT,  SHR,  PIC,0

                                             0004 00000           .ENTRY  DBG$NPARSE_ATTACH, Save R2    ; 0602
                             52        04  AC  D0 00002           MOVL    INPUT_DESC, R2                ; 0639
                                           62  B5 00006           TSTW    (R2)                          ;
                                           14  13 00008           BEQL    1$                            ;
                                           01  DD 0000A           PUSHL   #1                            ; 0646
                                    00000000'  EF  9F 0000C           PUSHAB  DBG$CS_CR                     ;
                                           52  DD 00012           PUSHL   R2                            ;
                   00000000G  00               03  FB 00014           CALLS   #3, DBG$NMATCH                ;
                              13               50  E9 0001B           BLBC    R0, 2$                        ;
                                     000280D0  8F  DD 0001E 1$:       PUSHL   #164048                       ; 0649
                   00000000G  00               01  FB 00024           CALLS   #1, DBG$NMAKE_ARG_VECT        ;
                          0C  BC               50  D0 0002B           MOVL    R0, @MESSAGE_VECT             ;
                                           14  11 0002F           BRB     3$                            ; 0650
                                           0C  AC  DD 00031 2$:       PUSHL   MESSAGE_VECT                  ; 0658
              7E          08  AC               04  C1 00034           ADDL3   #4, VERB_NODE, -(SP)          ;
                                           52  DD 00039           PUSHL   R2                            ;
                   00000000G  00               03  FB 0003B           CALLS   #3, DBG$NSAVE_STRING          ;
                              04               50  E8 00042           BLBS    R0, 4$                        ;
                              50               04  D0 00045 3$:       MOVL    #4, R0                        ; 0660
                                               04 00048           RET                                   ;
                              50               01  D0 00049 4$:       MOVL    #1, R0                        ; 0665
                                               04 0004C           RET                                   ; 0666

; Routine Size:  77 bytes,    Routine Base:  DBG$CODE + 022A
```

```
1 GLOBAL ROUTINE DBG$NEXECUTE_ATTACH (VERB_NODE, MESSAGE_VECT) =
1 !
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine executes an ATTACH command.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       verb_node -                     The command verb node which is the start
1 !                                       of the command execution tree
1 !
1 !       message_vect -                  The address of a longword to contain the
1 !                                       address of a message argument vector
1 !
1 ! IMPLICIT INPUTS:
1 !
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !
1 !       On failure, a message argument vector is returned
1 !
1 ! ROUTINE VALUE:
1 !
1 !       An unsigned integer longword completion code
1 !
1 ! COMPLETION CODES:
1 !
1 !       sts$k_success (1) -     Indicates the file was created and connected
1 !
1 !       sts$k_severe (4) -      Failure, file not created. Message argument vector returned
1 !
1 ! SIDE EFFECTS:
1 !
1 !
1
2     BEGIN
2
2     MAP
2         VERB_NODE: REF DBG$VERB_NODE;
2
2     LOCAL
2         EVNT_FLAG,                              ! Event flag number
2         ITEM: BLOCK [3,LONG],                   ! Item list for $GETJPI
2         PID,                                    ! Process id
2         PNAME: REF VECTOR[,BYTE],               ! Pointer to counted string
2                                                 !    with process name
2         STATUS,                                 ! Return status from LIB$ATTACH
2         STG_DESC: BLOCK[8,BYTE],                ! String descriptor with name
2         X;
2
2
2     ! Obtain the process name of the process we are to attach to.
2     !
2     PID = 0;
2     PNAME = .VERB_NODE [DBG$L_VERB_ADVERB_PTR];
2     STG_DESC[DSC$B_CLASS] = DSC$K_CLASS_S;
```

```
;  596        0724  2       STG_DESC[DSC$B_DTYPE] = DSC$K_DTYPE_T;
;  597        0725  2       STG_DESC[DSC$W_LENGTH] = .PNAME[0];
;  598        0726  2       STG_DESC[DSC$A_POINTER] = PNAME[1];
;  599        0727  2
;  600        0728  2
;  601        0729  2       ! Obtain the process id of the process we are to attach to.
;  602        0730  2       !
;  603        0731  2       STATUS = LIB$GET_EF(EVNT_FLAG);
;  604        0732  2       IF NOT .STATUS THEN SIGNAL(.STATUS);
;  605        0733  2       CH$FILL(0, 12, ITEM);
;  606        0734  2       STATUS = $GETJPI(EFN=.EVNT_FLAG, PIDADR=PID, PRCNAM=STG_DESC, ITMLST=ITEM);
;  607        0735  2       IF NOT .STATUS
;  608        0736  2       THEN
;  609        0737  3           BEGIN
;  610        0738  3           LIB$FREE_EF(EVNT_FLAG);
;  611        0739  3           SIGNAL(DBG$_GETJPI, 0, .STATUS);
;  612        0740  2           END;
;  613        0741  2
;  614        0742  2       $WAITFR(EFN = .EVNT_FLAG);
;  615        0743  2       LIB$FREE_EF(EVNT_FLAG);
;  616        0744  2
;  617        0745  2
;  618        0746  2       ! Reset the terminal screen to "normal" if we are in screen mode.  This
;  619        0747  2       ! makes sure that the whole terminal screen scrolls when we are in the
;  620        0748  2       ! other process and that the screen is refreshed when we reenter DEBUG.
;  621        0749  2       !
;  622        0750  2       DBG$SCR_SCREEN_NORMAL();
;  623        0751  2
;  624        0752  2
;  625        0753  2       ! Signal that we are about to do an attach.  Do the attach.  Signal an
;  626        0754  2       ! error if it fails.
;  627        0755  2       !
;  628        0756  2       SIGNAL(DBG$_ATTACHED, 1, .PNAME);
;  629        0757  2       STATUS = LIB$ATTACH(PID);
;  630        0758  2       IF NOT .STATUS THEN SIGNAL(DBG$_NOATTACH, 0, .STATUS);
;  631        0759  2
;  632        0760  2       ! After returning from the attach, set the terminal back to
;  633        0761  2       ! the appropriate mode. Then return.
;  634        0762  2       !
;  635        0763  2       IF .DBG$GB_KEYPAD_INPUT THEN X = 1 ELSE X = 0;
;  636        0764  2       SMG$SET_KEYPAD_MODE (DBG$GL_KEYBOARD_ID, X);
;  637        0765  2       RETURN STS$K_SUCCESS;
;  638        0766  1       END;


                                                         .EXTRN  SYS$GETJPI, SYS$WAITFR

                                    03FC 00000           .ENTRY  DBG$NEXECUTE_ATTACH, Save R2,R3,R4,R5,R6,-   ; 0667
                                                                 R7,R8,R9                                       ;
                    59 00000000G  00  9E 00002           MOVAB   LIB$FREE_EF, R9                               ;
                    58 00000000G  00  9E 00009           MOVAB   LIB$SIGNAL, R8                                ;
                    5E             20  C2 00010           SUBL2   #32, SP                                       ;
                               04  AE  D4 00013           CLRL    PID                                           ; 0721
                    50         04  AC  D0 00016           MOVL    VERB_NODE, R0                                 ; 0722
                    57         04  A0  D0 0001A           MOVL    4(R0), PNAME                                  ;
              0E    AE       010E  8F  B0 0001E           MOVW    #270, STG_DESC+2                              ; 0724
```

```
                                   0C AE            67 9B 00024       MOVZBW  (PNAME), STG_DESC                       ; 0725
                                   10 AE         01 A7 9E 00028       MOVAB   1(R7), STG_DESC+4                       ; 0726
                                                    5E DD 0002D       PUSHL   SP                                      ; 0731
                            00000000G 00            01 FB 0002F       CALLS   #1, LIB$GET_EF                          :
                                      56            50 D0 00036       MOVL    R0, STATUS                              :
                                      05            56 E8 00039       BLBS    STATUS, 1$                              ; 0732
                                                    56 DD 0003C       PUSHL   STATUS                                  :
                                      68            01 FB 0003E       CALLS   #1, LIB$SIGNAL                          :
        0C            00              6E            00 2C 00041 1$:   MOVC5   #0, (SP), #0, #12, ITEM                 ; 0733
                                                 14 AE    00046                                                       :
                                                    7E 7C 00048       CLRQ    -(SP)                                   ; 0734
                                                    7E D4 0004A       CLRL    -(SP)                                   :
                                                 20 AE 9F 0004C       PUSHAB  ITEM                                    :
                                                 1C AE 9F 0004F       PUSHAB  STG_DESC                                :
                                                 18 AE 9F 00052       PUSHAB  PID                                     :
                                                 18 AE DD 00055       PUSHL   EVNT_FLAG                               :
                            00000000G 00            07 FB 00058       CALLS   #7, SYS$GETJPI                          :
                                      56            50 D0 0005F       MOVL    R0, STATUS                              :
                                      12            56 E8 00062       BLBS    STATUS, 2$                              ; 0735
                                                    5E DD 00065       PUSHL   SP                                      ; 0738
                                      69            01 FB 00067       CALLS   #1, LIB$FREE_EF                         :
                                                    56 DD 0006A       PUSHL   STATUS                                  ; 0739
                                                    7E D4 0006C       CLRL    -(SP)                                   :
                                           00028A2A 8F DD 0006E       PUSHL   #166442                                 :
                                      68            03 FB 00074       CALLS   #3, LIB$SIGNAL                          :
                                                    6E DD 00077 2$:   PUSHL   EVNT_FLAG                               ; 0742
                            00000000G 00            01 FB 00079       CALLS   #1, SYS$WAITFR                          :
                                                    5E DD 00080       PUSHL   SP                                      ; 0743
                                      69            01 FB 00082       CALLS   #1, LIB$FREE_EF                         :
                            00000000G 00            00 FB 00085       CALLS   #0, DBG$SCR_SCREEN_NORMAL               ; 0750
                                                    57 DD 0008C       PUSHL   PNAME                                   ; 0756
                                                    01 DD 0008E       PUSHL   #1                                      :
                                           000286FB 8F DD 00090       PUSHL   #165627                                 :
                                      68            03 FB 00096       CALLS   #3, LIB$SIGNAL                          :
                                                 04 AE 9F 00099       PUSHAB  PID                                     ; 0757
                            00000000G 00            01 FB 0009C       CALLS   #1, LIB$ATTACH                          :
                                      56            50 D0 000A3       MOVL    R0, STATUS                              :
                                      0D            56 E8 000A6       BLBS    STATUS, 3$                              ; 0758
                                                    56 DD 000A9       PUSHL   STATUS                                  :
                                                    7E D4 000AB       CLRL    -(SP)                                   :
                                           00028A22 8F DD 000AD       PUSHL   #166434                                 :
                                      68            03 FB 000B3       CALLS   #3, LIB$SIGNAL                          :
                                      06 00000000G 00 E9 000B6 3$:    BLBC    DBG$GB_KEYPAD_INPUT, 4$                 ; 0763
                                   08 AE            01 D0 000BD       MOVL    #1, X                                   :
                                                    03 11 000C1       BRB     5$                                      :
                                                 08 AE D4 000C3 4$:   CLRL    X                                       :
                                                 08 AE 9F 000C6 5$:   PUSHAB  X                                       ; 0764
                                          00000000G 00 9F 000C9       PUSHAB  DBG$GL_KEYBOARD_ID                      :
                            00000000G 00            02 FB 000CF       CALLS   #2, SMG$SET_KEYPAD_MODE                 :
                                      50            01 D0 000D6       MOVL    #1, R0                                  ; 0765
                                                       04 000D9       RET                                             ; 0766

; Routine Size:  218 bytes,    Routine Base:  DBG$CODE + 0277
;  640          0767  1 GLOBAL ROUTINE DBG$NPARSE_SPAWN (INPUT_DESC, VERB_NODE, MESSAGE_VECT) =
;  641          0768  1 !
;  642          0769  1 ! FUNCTION
;  643          0770  1 !       Parses the spawn command. The "SPAWN" has already been recognized in the routine
;  644          0771  1 !       dbg$nparse_cmd network. This routine merely aquires the argument string
;  645          0772  1 !       and causes the noun node ( noun value ) field to point to the argument which
;  646          0773  1 !       is stored as a counted string in dynamically allocated storage.
;  647          0774  1 !
;  648          0775  1 ! FORMAL PARAMETERS:
;  649          0776  1 !
;  650          0777  1 !       INPUT_DESC - The present command line input descriptor.
;  651          0778  1 !
;  652          0779  1 !       VERB_NODE  - The already existing command Verb Node.
;  653          0780  1 !
;  654          0781  1 !       MESSAGE_VECT - The address of a longword to contain the address of a
;  655          0782  1 !                 message argument vector.
;  656          0783  1 !
;  657          0784  1 !
;  658          0785  1 ! ROUTINE VALUE:
;  659          0786  1 !       An unsigned integer longword completion code:
;  660          0787  1 !
;  661          0788  1 !               STS$K_SEVERE (4) - Error in parsing
;  662          0789  1 !
;  663          0790  1 !               STS$K_SUCCESS (1) - Successful parse
;  664          0791  1 !
;  665          0792  1
;  666          0793  2     BEGIN
;  667          0794  2
;  668          0795  2     MAP
;  669          0796  2         INPUT_DESC: REF DBG$STG_DESC,
;  670          0797  2         VERB_NODE: REF DBG$VERB_NODE;
;  671          0798  2
;  672          0799  2     BIND
;  673          0800  2         DBG$CS_NOWAIT            = UPLIT BYTE (6, 'NOWAIT'),
;  674          0801  2         DBG$CS_CR                = UPLIT BYTE (1, DBG$K_CAR_RETURN),
;  675          0802  2         DBG$CS_DBLQUOTE          = UPLIT BYTE (1, DBG$K_DBLQUOTE),
;  676          0803  2         DBG$CS_SLASH             = UPLIT BYTE (1, DBG$K_SLASH);
;  677          0804  2
;  678          0805  2     LOCAL
;  679          0806  2         CHAR: BYTE,                             ! Holds a single character
;  680          0807  2         COUNT,                                  ! Count of number of chars in arg
;  681          0808  2         COUNTED_STRING: REF VECTOR[,BYTE],      ! Points to a counted string
;  682          0809  2                                                 !       holding the argument.
;  683          0810  2         FLAGS: BITVECTOR[32],                   ! Flags for /NOWAIT etc
;  684          0811  2         NOUN_NODE: REF DBG$NOUN_NODE,           ! A pointer to a noun node
;  685          0812  2         OUTPUT_PTR,                             ! Pointer into counted string
;  686          0813  2         PREV_CHAR: BYTE,                        ! Holds a single character
;  687          0814  2         QUOTE_FLAG: BYTE;                       ! TRUE if argument is quoted
;  688          0815  2
;  689          0816  2
;  690          0817  2
;  691          0818  2     ! Initialize flags.
;  692          0819  2     !
;  693          0820  2     FLAGS = 0;
;  694          0821  2
;  695          0822  2
;  696          0823  2     ! Collect qualifiers.
;  697        0824  2      !
;  698        0825  2      WHILE DBG$NMATCH (.INPUT_DESC, DBG$CS_SLASH, 1) DO
;  699        0826  3          BEGIN
;  700        0827  3          SELECTONE TRUE OF
;  701        0828  3              SET
;  702        0829  3
;  703        0830  3              ! /NOWAIT
;  704        0831  3              !
;  705        0832  3              [DBG$NMATCH (.INPUT_DESC, DBG$CS_NOWAIT, 3)]:
;  706        0833  3                  FLAGS[NOWAIT_FLAG] = TRUE;
;  707        0834  3
;  708        0835  3              [DBG$NMATCH (.INPUT_DESC, DBG$CS_CR, 1)]:
;  709        0836  3                  SIGNAL(DBG$_NEEDMORE);
;  710        0837  3
;  711        0838  3              [OTHERWISE]:
;  712        0839  3                  SIGNAL(DBG$_ILLQUALIF);
;  713        0840  3
;  714        0841  3              TES;
;  715        0842  2          END;
;  716        0843  2
;  717        0844  2
;  718        0845  2      ! Put the flags in the adverb field.
;  719        0846  2      !
;  720        0847  2      VERB_NODE[DBG$L_VERB_ADVERB_PTR] = .FLAGS;
;  721        0848  2
;  722        0849  2
;  723        0850  2      ! Check for end-of-line. If so, there was no argument to SPAWN.
;  724        0851  2      ! We do not allocate a noun node in this case. Just return success.
;  725        0852  2      !
;  726        0853  2      IF .INPUT_DESC [DSC$W_LENGTH] EQL 0 THEN RETURN STS$K_SUCCESS;
;  727        0854  2      IF DBG$NMATCH (.INPUT_DESC, DBG$CS_CR, 1) THEN RETURN STS$K_SUCCESS;
;  728        0855  2
;  729        0856  2
;  730        0857  2      ! Create and link a Noun Node.
;  731        0858  2      !
;  732        0859  2      NOUN_NODE = DBG$GET_TEMPMEM(DBG$K_NOUN_NODE_SIZE);
;  733        0860  2      VERB_NODE[DBG$L_VERB_OBJECT_PTR] = .NOUN_NODE;
;  734        0861  2
;  735        0862  2
;  736        0863  2      ! Check whether the user has enclosed the argument in quotes.
;  737        0864  2      !
;  738        0865  2      IF DBG$NMATCH(.INPUT_DESC, DBG$CS_DBLQUOTE, 1)
;  739        0866  2      THEN
;  740        0867  2          QUOTE_FLAG = TRUE
;  741        0868  2
;  742        0869  2      ELSE
;  743        0870  2          QUOTE_FLAG = FALSE;
;  744        0871  2
;  745        0872  2
;  746        0873  2      ! Allocate space to store the argument string.
;  747        0874  2      !
;  748        0875  2      COUNTED_STRING = DBG$GET_TEMPMEM(1 + (1 + .INPUT_DESC[DSC$W_LENGTH])/4);
;  749        0876  2
;  750        0877  2
;  751        0878  2      ! Initialize some variables.
;  752        0879  2      !
;  753        0880  2      CHAR = 0;
;  2      COUNT = 0;
;  2      OUTPUT_PTR = COUNTED_STRING[1];
;  2
;  2
;  2      ! Loop through the input, copying characters into the counted string.
;  2      !
;  2      WHILE .INPUT_DESC[DSC$W_LENGTH] GTR 0 DO
;  3          BEGIN
;  3
;  3
;  3          ! Get the next character.
;  3          !
;  3          PREV_CHAR = .CHAR;
;  3          CHAR = CH$RCHAR_A (INPUT_DESC [DSC$A_POINTER]);
;  3          INPUT_DESC [DSC$W_LENGTH] = .INPUT_DESC [DSC$W_LENGTH] - 1;
;  3
;  3
;  3          ! Check for carriage return.
;  3          !
;  3          IF .CHAR FQL DBG$K_CAR_RETURN THEN EXITLOOP;
;  3
;  3
;  3          ! If argument was quoted, check for either doubled quotes or
;  3          ! closing quote.
;  3          !
;  3          IF .QUOTE_FLAG
;  3          THEN
;  4              BEGIN
;  4              IF .CHAR EQL DBG$K_DBLQUOTE
;  4              THEN
;  5                  BEGIN
;  5
;  5
;  5                  ! Undouble double quotes if that is what we have.  Otherwise,
;  5                  ! we exit the quoted-string loop on the clonsing quote.
;  5                  !
;  5                  IF .PREV CHAR NEQ DBG$K DBLQUOTE THEN EXITLOOP;
;  5                  CHAR = CH$RCHAR_A(.INPUT_DESC [DSC$A_POINTER]);
;  5                  INPUT_DESC[DSC$W_LENGTH] = .INPUT_DESC[DSC$W_LENGTH] - 1;
;  4                  END;
;  4
;  3              END;
;  3
;  3
;  3          ! Write the character to the output buffer and increment count
;  3          ! of number of chars in output buffer.
;  3          !
;  3          CH$WCHAR_A(.CHAR, OUTPUT_PTR);
;  3          COUNT = .COUNT + 1;
;  2          END;
;  2
;  2
;  2      ! Fill in the count field.
;  2      !
;  2      COUNTED_STRING [0] = .COUNT;
;  2
;  2
;  811         0938  2      ! Fill in the Noun Node.
;  812         0939  2      !
;  813         0940  2      NOUN_NODE [DBG$L_NOUN_VALUE] = .COUNTED_STRING;
;  814         0941  2
;  815         0942  2
;  816         0943  2      ! Return success.
;  817         0944  2      !
;  818         0945  2      RETURN STS$K_SUCCESS;
;  819         0946  2
;  820         0947  1      END;


                                                        .PSECT  DBG$PLIT,NOWRT,  SHR,  PIC,0

                                   06  0003A P.AAI:    .BYTE   6                                   ;
                54  49  41  57  4F  4E  0003B           .ASCII  \NOWAIT\                            ;
                               0D  01  00041 P.AAJ:    .BYTE   1, 13                               ;
                               22  01  00043 P.AAK:    .BYTE   1, 34                               ;
                               2F  01  00045 P.AAL:    .BYTE   1, 47                               ;

                                             DBG$CS_NOWAIT=       P.AAI
                                             DBG$CS_CR=           P.AAJ
                                             DBG$CS_DBLQUOTE=     P.AAK
                                             DBG$CS_SLASH=        P.AAL


                                                        .PSECT  DBG$CODE,NOWRT,  SHR,  PIC,0

                                  0FFC 00000           .ENTRY  DBG$NPARSE_SPAWN, Save R2,R3,R4,R5,R6,R7,-  ; 0767
                                                               R8,R9,R10,R11
                5B 00000000G  00  9E 00002           MOVAB   DBG$GET_TEMPMEM, R11                         ;
                5A 00000000'  EF  9E 00009           MOVAB   DBG$CS_CR, R10                               ;
                59 00000000G  00  9E 00010           MOVAB   DBG$NMATCH, R9                               ;
                              54  D4 00017           CLRL    FLAGS                                        ; 0820
                53        04  AC  D0 00019           MOVL    INPUT_DESC, R3                               ; 0825
                              01  DD 0001D 1$:       PUSHL   #1                                           ;
                          04  AA  9F 0001F           PUSHAB  DBG$CS_SLASH                                 ;
                              53  DD 00022           PUSHL   R3                                           ;
                69            03  FB 00024           CALLS   #3, DBG$NMATCH                               ;
                39            50  E9 00027           BLBC    R0, 5$                                       ;
                              03  DD 0002A           PUSHL   #3                                           ; 0832
                          F9  AA  9F 0002C           PUSHAB  DBG$CS_NOWAIT                                ;
                              53  DD 0002F           PUSHL   R3                                           ;
                69            03  FB 00031           CALLS   #3, DBG$NMATCH                               ;
                01            50  D1 00034           CMPL    R0, #1                                       ;
                              05  12 00037           BNEQ    2$                                           ;
                54            01  88 00039           BISB2   #1, FLAGS                                    ; 0833
                              DF  11 0003C           BRB     1$                                           ;
                              01  DD 0003E 2$:       PUSHL   #1                                           ; 0835
                        0408  8F  BB 00040           PUSHR   #^M<R3,R10>                                  ;
                69            03  FB 00044           CALLS   #3, DBG$NMATCH                               ;
                01            50  D1 00047           CMPL    R0, #1                                       ;
                              08  12 0004A           BNEQ    3$                                           ;
                    000280D0  8F  DD 0004C           PUSHL   #164048                                      ; 0836
                              06  11 00052           BRB     4$                                           ;
                    00028D20  8F  DD 00054 3$:       PUSHL   #167200                                      ; 0839
```

```
00000000G  00                01 FB 0005A 4$:    CALLS   #1, LIB$SIGNAL                      ;
                             BA 11 00061        BRB     1$                                  ; 0825
           52          08    AC D0 00063 5$:    MOVL    VERB_NODE, R2                       ; 0847
       04  A2                54 D0 00067        MOVL    FLAGS, 4(R2)                        ;
                             63 B5 0006B        TSTW    (R3)                                ; 0853
                             03 12 0006D        BNEQ    6$                                  ;
                           0080 31 0006F        BRW     12$                                 ;
                             01 DD 00072 6$:    PUSHL   #1                                  ; 0854
                     0408    8F BB 00074        PUSHR   #^M<R3,R10>                         ;
           69                03 FB 00078        CALLS   #3, DBG$NMATCH                      ;
           74                50 E8 0007B        BLBS    R0, 12$                             ;
                             04 DD 0007E        PUSHL   #4                                  ; 0859
           6B                01 FB 00080        CALLS   #1, DBG$GET_TEMPMEM                 ;
           57                50 D0 00083        MOVL    R0, NOUN_NODE                       ;
       08  A2                57 D0 00086        MOVL    NOUN_NODE, 8(R2)                    ; 0860
                             01 DD 0008A        PUSHL   #1                                  ; 0865
                       02    AA 9F 0008C        PUSHAB  DBG$CS_DBLQUOTE                     ;
                             53 DD 0008F        PUSHL   R3                                  ;
           69                03 FB 00091        CALLS   #3, DBG$NMATCH                      ;
           05                50 E9 00094        BLBC    R0, 7$                              ;
           56                01 90 00097        MOVB    #1, QUOTE_FLAG                      ; 0867
                             02 11 0009A        BRB     8$                                  ;
                             56 94 0009C 7$:    CLRB    QUOTE_FLAG                          ; 0870
           50                63 3C 0009E 8$:    MOVZWL  (R3), R0                            ; 0875
                             50 D6 000A1        INCL    R0                                  ;
           50                04 C6 000A3        DIVL2   #4, R0                              ;
                       01    A0 9F 000A6        PUSHAB  1(R0)                               ;
           6B                01 FB 000A9        CALLS   #1, DBG$GET_TEMPMEM                 ;
           54                50 D0 000AC        MOVL    R0, COUNTED_STRING                  ;
                             51 94 000AF        CLRB    CHAR                                ; 0880
                             55 D4 000B1        CLRL    COUNT                               ; 0881
           50          01    A4 9E 000B3        MOVAB   1(R4), OUTPUT_PTR                   ; 0882
                             63 B5 000B7 9$:    TSTW    (R3)                                ; 0887
                             31 13 000B9        BEQL    11$                                 ;
           52                51 90 000BB        MOVB    CHAR, PREV_CHAR                     ; 0893
           51          04    B3 90 000BE        MOVB    @4(R3), CHAR                        ; 0894
                       04    A3 D6 000C2        INCL    4(R3)                               ;
                             63 B7 000C5        DECW    (R3)                                ; 0895
           0D                51 91 000C7        CMPB    CHAR, #13                           ; 0900
                             20 13 000CA        BEQL    11$                                 ;
           16                56 E9 000CC        BLBC    QUOTE_FLAG, 10$                     ; 0906
           22                51 91 000CF        CMPB    CHAR, #34                           ; 0909
                             11 12 000D2        BNEQ    10$                                 ;
           22                52 91 000D4        CMPB    PREV_CHAR, #34                      ; 0917
                             13 12 000D7        BNEQ    11$                                 ;
           58          04    B3 D0 000D9        MOVL    @4(R3), R8                          ; 0918
           51                68 90 000DD        MOVB    (R8), CHAR                          ;
                       04    B3 D6 000E0        INCL    @4(R3)                              ;
                             63 B7 000E3        DECW    (R3)                                ; 0919
           80                51 90 000E5 10$:   MOVB    CHAR, (OUTPUT_PTR)+                 ; 0928
                             55 D6 000E8        INCL    COUNT                               ; 0929
                             CB 11 000EA        BRB     9$                                  ; 0887
           64                55 90 000EC 11$:   MOVB    COUNT, (COUNTED_STRING)             ; 0935
           67                54 D0 000EF        MOVL    COUNTED_STRING, (NOUN_NODE)         ; 0940
           50                01 D0 000F2 12$:   MOVL    #1, R0                              ; 0945
                                04 000F5        RET                                         ; 0947
```

```
; Routine Size:  246 bytes,    Routine Base:  DBG$CODE + 0351
```

```
1 GLOBAL ROUTINE DBG$NEXECUTE_SPAWN (VERB_NODE, MESSAGE_VECT) =
1 !
1 ! FUNCTION
1 !       This routine executes a SPAWN command.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       VERB_NODE - The command verb node which is the start of the command
1 !                 execution tree.
1 !
1 !       MESSAGE_VECT - The address of a longword to contain the address of
1 !                 a message argument vector.
1 !
1 ! ROUTINE VALUE:
1 !       An unsigned integer longword completion code:
1 !
1 !               STS$K_SUCCESS (1) - Indicates the file was created and connected
1 !
1 !               STS$K_SEVERE (4) - Failure, file not created. Message argument
1 !                                  vector returned.
1 !
1
2     BEGIN
2
2     MAP
2         VERB_NODE: REF DBG$VERB_NODE;
2
2     LOCAL
2         COUNTED_STRING:                     ! Contains arg to SPAWN
2                 REF VECTOR[,BYTE],          !
2         EVNT_FLAG,                          ! Event flag for $GETJPI call
2         FLAGS: BITVECTOR[32],               ! Flags for /NOWAIT etc.
2         ITEM: BLOCK[6, LONG],               ! Item list for GETJPI
2         LEN: WORD,                          ! Length of process name
2         NAME_BUFFER: VECTOR[32,BYTE],       ! Process name
2         NOUN_NODE: REF DBG$NOUN_NODE,       ! Command object noun
2         STATUS,                             ! Return status from LIB$SPANW
2         STG_DESC: DBG$STG_DESC,             ! A string descriptor
2         X;
2
2     ! Reset the terminal screen to "normal" if we are in screen mode.  This
2     ! makes sure that the whole terminal screen scrolls when we are in the
2     ! other process and that the screen is refreshed when we reenter DEBUG.
2     !
2     DBG$SCR_SCREEN_NORMAL();
2
2     ! Obtain the qualifier flags and the noun node.
2     ! The flags will tell us whether /NOWAIT was specified (this
2     ! is currently the only qualifier we support).
2     ! The noun node tells whether a DCL command was given as argument,
2     ! or whether we saw a bare SPAWN.
2     !
2     FLAGS = .VERB_NODE [DBG$L_VERB_ADVERB_PTR];
2     NOUN_NODE = .VERB_NODE [DBG$L_VERB_OBJECT_PTR];
2
```

```
2
2      ! Note - in both cases below we would like to put out the
2      ! "SPAWNED - process XXX spawned; terminal now attached to ..."
2      ! as DCL does. But LIB$SPAWN does not put out this message, and
2      ! there appears to be no way we can put it out at this level
2      ! (we don't know if LIB$SPAWN will succeed, and even if it does,
2      ! we don't know the name of the spawned subprocess).
2      !
2      ! If no command string is given, just call LIB$SPAWN with flags argument.
2      !
2      IF .NOUN_NODE EQL 0
2      THEN
2          STATUS = LIB$SPAWN(0,0,0,FLAGS,0,0)
2
2
2      ! If a command string was given, we pass it into LIB$SPAWN along with the
2      ! flags argument.
2      !
2      ELSE
3          BEGIN
3          COUNTED_STRING = .NOUN_NODE[DBG$L_NOUN_VALUE];
3          STG_DESC[DSC$B_CLASS] = DSC$K_CLASS_S;
3          STG_DESC[DSC$B_DTYPE] = DSC$K_DTYPE_T;
3          STG_DESC[DSC$W_LENGTH] = .COUNTED_STRING[0];
3          STG_DESC[DSC$A_POINTER] = COUNTED_STRING[1];
3          STATUS = LIB$SPAWN(STG_DESC,0,0,FLAGS,0,0);
3          END;
2
2
2      ! If a bad status was returned then signal a DEBUG error and include
2      ! the return status as the secondary error.
2      !
2      IF NOT .STATUS
2      THEN
2          SIGNAL(DBG$_NOSPAWN, 0, .STATUS)
2
2      ELSE
3          BEGIN
3          IF .FLAGS[NOWAIT_FLAG]
3          THEN
3
3              ! We can put out an informational message if a SPAWN/NOWAIT
3              ! subprocess was created.
3              !
3              SIGNAL(DBG$_SPAWNED)
3
3          ELSE
4              BEGIN
4
4
4              ! On a successful return just give an informational message that
4              ! control is being returned to the parent process.
4              !
4              ! Note - if we return to the parent via an ATTACH, we will
4              ! go through this code, which we don't really want to do.
4              !
4              ! We have to first go through some work just to determine the
```

```
;  936       1062  4              ! name of the parent process.
;  937       1063  4              !
;  938       1064  4              ITEM[0,0,16,0] = 15;
;  939       1065  4              ITEM[0,16,16,0] = JPI$_PRCNAM;
;  940       1066  4              ITEM[1,0,32,0] = NAME_BUFFER;
;  941       1067  4              ITEM[2,0,32,0] = LEN;
;  942       1068  4              CH$FILL(0, 12, ITEM[3, A_]);
;  943       1069  4              STATUS = LIB$GET_EF(EVNT_FLAG);
;  944       1070  4              IF NOT .STATUS THEN SIGNAL(.STATUS);
;  945       1071  4              STATUS = $GETJPI(EFN=.EVNT_FLAG, ITMLST=ITEM);
;  946       1072  4              LIB$FREE_EF(EVNT_FLAG);
;  947       1073  4              SIGNAL(DBG$_RETURNED, 2, .LEN, NAME_BUFFER);
;  948       1074  3              END;
;  949       1075  3
;  950       1076  2          END;
;  951       1077  2
;  952       1078  2      ! After returning from the spawn, set the terminal back to
;  953       1079  2      ! the appropriate mode. Then return.
;  954       1080  2      !
;  955       1081  2      IF .DBG$GB_KEYPAD_INPUT THEN X = 1 ELSE X = 0;
;  956       1082  2      SMG$SET_KEYPAD_MODE (DBG$GL_KEYBOARD_ID, X);
;  957       1083  2      RETURN STS$K_SUCCESS;
;  958       1084  1      END;
; INFO#250             L1:1073
; Referenced LOCAL symbol LEN is probably not initialized




                                  00FC 00000          .ENTRY  DBG$NEXECUTE_SPAWN, Save R2,R3,R4,R5,R6,R7   ; 0948
          57 00000000G     00  9E 00002          MOVAB   LIB$SIGNAL, R7                                ;
          5E        AC     AE  9E 00009          MOVAB   -84(SP), SP                                   ;
00000000G 00               00  FB 0000D          CALLS   #0, DBG$SCR_SCREEN_NORMAL                     ; 0993
          50        04     AC  D0 00014          MOVL    VERB_NODE, R0                                 ; 1002
          6E        04     A0  D0 00018          MOVL    4(R0), FLAGS                                  ;
          50        08     A0  D0 0001C          MOVL    8(R0), NOUN_NODE                              ; 1003
                           0B  12 00020          BNEQ    1$                                            ; 1015
                           7E  7C 00022          CLRQ    -(SP)                                         ; 1017
                    08     AE  9F 00024          PUSHAB  FLAGS                                         ;
                           7E  7C 00027          CLRQ    -(SP)                                         ;
                           7E  D4 00029          CLRL    -(SP)                                         ;
                           1C  11 0002B          BRB     2$                                            ;
          50               60  D0 0002D 1$:      MOVL    (NOUN_NODE), COUNTED_STRING                   ; 1025
       12 AE      010E     8F  B0 00030          MOVW    #270, STG_DESC+2                              ; 1027
       10 AE               60  9B 00036          MOVZBW  (COUNTED_STRING), STG_DESC                    ; 1028
       14 AE        01     A0  9E 0003A          MOVAB   1(R0), STG_DESC+4                             ; 1029
                           7E  7C 0003F          CLRQ    -(SP)                                         ; 1030
                    08     AE  9F 00041          PUSHAB  FLAGS                                         ;
                           7E  7C 00044          CLRQ    -(SP)                                         ;
                    24     AE  9F 00046          PUSHAB  STG_DESC                                      ;
00000000G 00               06  FB 00049 2$:      CALLS   #6, LIB$SPAWN                                 ;
          56               50  D0 00050          MOVL    R0, STATUS                                    ;
          0F               56  E8 00053          BLBS    STATUS, 3$                                    ; 1037
                           56  DD 00056          PUSHL   STATUS                                        ; 1039
                           7E  D4 00058          CLRL    -(SP)                                         ;
              00028A1A     8F  DD 0005A          PUSHL   #166426                                       ;
```

```
                              67            03  FB 00060        CALLS   #3, LIB$SIGNAL                          ;
                                            6E  11 00063        BRB     6$                                      ;
                              0B            6E  E9 00065 3$:    BLBC    FLAGS, 4$                               ; 1043
                                  000286F3  8F  DD 00068        PUSHL   #165619                                 ; 1049
                              67            01  FB 0006E        CALLS   #1, LIB$SIGNAL                          ;
                                            60  11 00071        BRB     6$                                      ;
                          3C  AE  031C000F  8F  D0 00073 4$:    MOVL    #52166671, ITEM                         ; 1064
                          40  AE        1C  AE  9E 0007B        MOVAB   NAME_BUFFER, ITEM+4                     ; 1066
                          44  AE        04  AE  9E 00080        MOVAB   LEN, ITEM+8                             ; 1067
  0C            00            6E            00  2C 00085        MOVC5   #0, (SP), #0, #12, ITEM+12              ; 1068
                                        48  AE     0008A                                                        ;
                                        08  AE  9F 0008C        PUSHAB  EVNT_FLAG                               ; 1069
                   00000000G  00            01  FB 0008F        CALLS   #1, LIB$GET_EF                          ;
                              56            50  D0 00096        MOVL    R0, STATUS                              ;
                              05            56  E8 00099        BLBS    STATUS, 5$                              ; 1070
                                            56  DD 0009C        PUSHL   STATUS                                  ;
                              67            01  FB 0009E        CALLS   #1, LIB$SIGNAL                          ;
                                            7E  7C 000A1 5$:    CLRQ    -(SP)                                   ; 1071
                                            7E  D4 000A3        CLRL    -(SP)                                   ;
                                        48  AE  9F 000A5        PUSHAB  ITEM                                    ;
                                            7E  7C 000A8        CLRQ    -(SP)                                   ;
                                        20  AE  DD 000AA        PUSHL   EVNT_FLAG                               ;
                   00000000G  00            07  FB 000AD        CALLS   #7, SYS$GETJPI                          ;
                              56            50  D0 000B4        MOVL    R0, STATUS                              ;
                                        08  AE  9F 000B7        PUSHAB  EVNT_FLAG                               ; 1072
                   00000000G  00            01  FB 000BA        CALLS   #1, LIB$FREE_EF                         ;
                                        1C  AE  9F 000C1        PUSHAB  NAME_BUFFER                             ; 1073
                              7E        08  AE  3C 000C4        MOVZWL  LEN, -(SP)                              ;
                                            02  DD 000C8        PUSHL   #2                                      ;
                                  000286D3  8F  DD 000CA        PUSHL   #165587                                 ;
                              67            04  FB 000D0        CALLS   #4, LIB$SIGNAL                          ;
                              06 00000000G  00  E9 000D3 6$:    BLBC    DBG$GB_KEYPAD_INPUT, 7$                 ; 1081
                          0C  AE            01  D0 000DA        MOVL    #1, X                                   ;
                                            03  11 000DE        BRB     8$                                      ;
                                        0C  AE  D4 000E0 7$:    CLRL    X                                       ;
                                        0C  AE  9F 000E3 8$:    PUSHAB  X                                       ; 1082
                                 00000000G  00  9F 000E6        PUSHAB  DBG$GL_KEYBOARD_ID                      ;
                   00000000G  00            02  FB 000EC        CALLS   #2, SMG$SET_KEYPAD_MODE                 ;
                              50            01  D0 000F3        MOVL    #1, R0                                  ; 1083
                                                04 000F6        RET                                             ; 1084

; Routine Size:  247 bytes,    Routine Base:  DBG$CODE + 0447
```

```
1 GLOBAL ROUTINE dbg$construct_param_name (param_count, param_name,
1                           perm_flag, message_vect) =
1 !++
1 ! Routine Description
1 !
1 !       This routine constructs a name of the form "%Pi", given the
1 !       number i. The reason there is a global routine for this is
1 !       that this needs to be called from within DBG$NEXECUTE_DECLARE
1 !       as well as DBG$NEXECUTE_AT_SIGN.
1 !
1 ! Inputs
1 !
1 !       param_count     -       The number "i" which is to be made into the
1 !                               name "%Pi".
1 !       param_name      -       An address to receive the constructed name.
1 !       perm_flag       -       If TRUE, construct param name out of permanent
1 !                               memory
1 !       message_vect    -       An error message vector.
1 !
1 ! Outputs
1 !
1 !       A counted string is constructed and param_name is filled in with
1 !       its address.
1 !       A condition code is returned. This is one of:
1 !       STS$K_SUCCESS - success.
1 !       STS$K_SEVERE - error. An error message vector is constructed.
1 !
1 ! Side Effects
1 !
1 !       Memory is allocated for the name.
1 !--
2     BEGIN
2
2     LOCAL
2       outlen: WORD,                                   ! Receives length from SYS$FAO
2       param_len: WORD,                                ! Length of parameter name
2       stg_desc1       : dbg$stg_desc,                 ! Used in call to SYS$FAO
2       stg_desc2       : dbg$stg_desc,                 ! Used in call to SYS$FAO
2       temp_name: REF VECTOR [,BYTE];                  ! Holds name temporarily
2
2     EXTERNAL ROUTINE
2       sys$fao;
2
2     ! Determine the length of the name.
2     !
2     IF .param_count GEQ 1 AND .param_count LEQ 9
2     THEN
2       param_len = 3
2     ELSE IF .param_count GEQ 10 AND .param_count LEQ 99
2     THEN
2       param_len = 4
2     ELSE
2       $DBG_ERROR('DBGATSIGN\DBG$CONSTRUCT_PARAM_NAME');
2
2     ! Allocate space for the name.
2     !
2     IF .perm_flag
```

```
; 1017          1142  2      THEN
; 1018          1143  3          BEGIN
; 1019          1144  3          temp_name = dbg$get_memory (1+ (1+.param_len)/4);
; 1020          1145  3          END
; 1021          1146  2      ELSE
; 1022          1147  3          BEGIN
; 1023          1148  3          temp_name = dbg$get_tempmem (1+ (1+.param_len)/4);
; 1024          1149  2          END;
; 1025          1150  2
; 1026          1151  2      temp_name[0] = .param_len;
; 1027          1152  2      ch$move (2, UPLIT BYTE(%ASCII '%P'), temp_name[1]);
; 1028          1153  2
; 1029          1154  2      ! Fill in the string descriptor for use by SYS$FAO.
; 1030          1155  2      !
; 1031          1156  2      stg_desc1[dsc$w_length] = 3;
; 1032          1157  2      stg_desc1[dsc$a_pointer] = UPLIT BYTE (%ASCII '!SL');
; 1033          1158  2      stg_desc2[dsc$w_length] = .param_len-2;
; 1034          1159  2      stg_desc2[dsc$a_pointer] = temp_name[3];
; 1035          1160  2
; 1036          1161  2      ! Call SYS$FAO to convert the number into a string.
; 1037          1162  2      !
; 1038          1163  2      IF NOT sys$fao (stg_desc1, outlen, stg_desc2, .param_count)
; 1039          1164  2      THEN
; 1040          1165  2          $DBG_ERROR('DBGATSIGN\DBG$CONSTRUCT_PARAM_NAME');
; 1041          1166  2
; 1042          1167  2      ! Check that SYS$FAO filled in the expected number of characters.
; 1043          1168  2      !
; 1044          1169  2      IF .outlen NEQ .param_len-2
; 1045          1170  2      THEN
; 1046          1171  2          $DBG_ERROR('DBGATSIGN\DBG$CONSTRUCT_PARAM_NAME');
; 1047          1172  2
; 1048          1173  2      ! Fill in output parameter.
; 1049          1174  2      !
; 1050          1175  2      .param_name = .temp_name;
; 1051          1176  2
; 1052          1177  2      ! Return success.
; 1053          1178  2      !
; 1054          1179  2      RETURN sts$k_success;
; 1055          1180  2
; 1056          1181  1      END; ! dbg$construct_param_name


                                                                    .PSECT  DBG$PLIT,NOWRT,  SHR,  PIC,0

24 47 42 44 5C 4E 47 49 53 54 41 47 42 44 22 00047 P.AAM:  .ASCII  \'DBGATSIGN\<92>\DBG$CONSTRUCT_PARAM_NAM\   ;
4D 41 52 41 50 5F 54 43 55 52 54 53 4E 4F 43 00056                                                         ;
                                    4D 41 4E 5F 00065                                                         ;
                                             45 00069          .ASCII  \E\                                  ;
                                          50 25 0006A P.AAN:  .ASCII  \%P\                                 ;
                                       4C 53 21 0006C P.AAO:  .ASCII  \!SL\                                ;
24 47 42 44 5C 4E 47 49 53 54 41 47 42 44 22 0006F P.AAP:  .ASCII  \'DBGATSIGN\<92>\DBG$CONSTRUCT_PARAM_NAM\   ;
4D 41 52 41 50 5F 54 43 55 52 54 53 4E 4F 43 0007E                                                         ;
                                    4D 41 4E 5F 0008D                                                         ;
                                             45 00091          .ASCII  \E\                                  ;
24 47 42 44 5C 4E 47 49 53 54 41 47 42 44 22 00092 P.AAQ:  .ASCII  \'DBGATSIGN\<92>\DBG$CONSTRUCT_PARAM_NAM\   ;
4D 41 52 41 50 5F 54 43 55 52 54 53 4E 4F 43 000A1                                                         ;
```

```
                      4D  41  4E  5F  000B0                                                            ;
                                  45  000B4              .ASCII  \E\                                   ;

                                                         .EXTRN  SYS$FAO

                                                         .PSECT  DBG$CODE,NOWRT,  SHR,  PIC,0

                                007C  00000              .ENTRY  DBG$CONSTRUCT_PARAM_NAME, Save R2,R3,R4,R5,-; 1085
                                                                 R6                                    ;
                 56 00000000G  00  9E 00002              MOVAB   LIB$SIGNAL, R6                        ;
                 55 00000000'  EF  9E 00009              MOVAB   P.AAM, R5                             ;
                 5E            1C  C2 00010              SUBL2   #28, SP                               ;
                 54        04  AC  D0 00013              MOVL    PARAM_COUNT, R4                       ; 1130
                               0A  15 00017              BLEQ    1$                                    ;
                 09            54  D1 00019              CMPL    R4, #9                                ;
                               05  14 0001C              BGTR    1$                                    ;
                 53            03  B0 0001E              MOVW    #3, PARAM_LEN                         ; 1132
                               20  11 00021              BRB     3$                                    ;
                 0A            54  D1 00023 1$:          CMPL    R4, #10                               ; 1133
                               0E  19 00026              BLSS    2$                                    ;
        00000063 8F            54  D1 00028              CMPL    R4, #99                               ;
                               05  14 0002F              BGTR    2$                                    ;
                 53            04  B0 00031              MOVW    #4, PARAM_LEN                         ; 1135
                               0D  11 00034              BRB     3$                                    ;
                               55  DD 00036 2$:          PUSHL   R5                                    ; 1137
                               01  DD 00038              PUSHL   #1                                    ;
                    00028362   8F  DD 0003A              PUSHL   #164706                               ;
                 66            03  FB 00040              CALLS   #3, LIB$SIGNAL                        ;
                 50            53  3C 00043 3$:          MOVZWL  PARAM_LEN, R0                         ; 1144
                               50  D6 00046              INCL    R0                                    ;
                 50            04  C6 00048              DIVL2   #4, R0                                ;
                               50  D6 0004B              INCL    R0                                    ;
                 0B        0C  AC  E9 0004D              BLBC    PERM_FLAG, 4$                         ; 1141
                               50  DD 00051              PUSHL   R0                                    ; 1144
       00000000G 00            01  FB 00053              CALLS   #1, DBG$GET_MEMORY                    ;
                               09  11 0005A              BRB     5$                                    ;
                               50  DD 0005C 4$:          PUSHL   R0                                    ; 1148
       00000000G 00            01  FB 0005E              CALLS   #1, DBG$GET_TEMPMEM                   ;
                 52            50  D0 00065 5$:          MOVL    R0, TEMP_NAME                         ;
                 62            53  90 00068              MOVB    PARAM_LEN, (TEMP_NAME)                ; 1151
              01 A2        23  A5  B0 0006B              MOVW    P.AAN, 1(TEMP_NAME)                   ; 1152
              10 AE            03  B0 00070              MOVW    #3, STG_DESC1                         ; 1156
              14 AE        25  A5  9E 00074              MOVAB   P.AAO, STG_DESC1+4                    ; 1157
                 53            53  3C 00079              MOVZWL  PARAM_LEN, R3                         ; 1158
                 53            02  C2 0007C              SUBL2   #2, R3                                ;
              04 AE            53  B0 0007F              MOVW    R3, STG_DESC2                         ;
              08 AE        03  A2  9E 00083              MOVAB   3(R2), STG_DESC2+4                    ; 1159
                               54  DD 00088              PUSHL   R4                                    ; 1163
                           08  AE  9F 0008A              PUSHAB  STG_DESC2                             ;
                           08  AE  9F 0008D              PUSHAB  OUTLEN                                ;
                           1C  AE  9F 00090              PUSHAB  STG_DESC1                             ;
       00000000G 00            04  FB 00093              CALLS   #4, SYS$FAO                           ;
                 0E            50  E8 0009A              BLBS    R0, 6$                                ;
                           28  A5  9F 0009D              PUSHAB  P.AAP                                 ; 1165
                               01  DD 000A0              PUSHL   #1                                    ;
                    00028362   8F  DD 000A2              PUSHL   #164706                               ;
                 66            03  FB 000A8              CALLS   #3, LIB$SIGNAL                        ;
```

```
           53             6E            10              00  ED 000AB 6$:     CMPZV   #0, #16, OUTLEN, R3                 ; 1169
                                                        0E  13 000B0         BEQL    7$                                  ;
                                                4B      A5  9F 000B2         PUSHAB  P.AAQ                               ; 1171
                                                        01  DD 000B5         PUSHL   #1                                  ;
                                          00028362      8F  DD 000B7         PUSHL   #164706                             ;
                                        66              03  FB 000BD         CALLS   #3, LIB$SIGNAL                      ;
                                   08   BC              52  D0 000C0 7$:     MOVL    TEMP_NAME, @PARAM_NAME              ; 1175
                                        50              01  D0 000C4         MOVL    #1, R0                              ; 1179
                                                            04 000C7         RET                                         ; 1181

; Routine Size:  200 bytes,    Routine Base:  DBG$CODE + 053E
; 1058        1182  1  GLOBAL ROUTINE dbg$parse_spawn (parse_stg_desc) =
; 1059        1183  1  !+
; 1060        1184  1  ! Functional Description
; 1061        1185  1  !
; 1062        1186  1  !       This routine provides an interface from the old language parsers to
; 1063        1187  1  !       the new debugger parse network for SPAWN. It is passed a string
; 1064        1188  1  !       descriptor for the remainder of the input line.
; 1065        1189  1  !       It calls DBG$NPARSE_SPAWN to construct
; 1066        1190  1  !       a command execution network, and returns a pointer to the verb node.
; 1067        1191  1  !
; 1068        1192  1  ! Inputs
; 1069        1193  1  !
; 1070        1194  1  !       parse_stg_desc  -       A string descriptor for the remainder of the
; 1071        1195  1  !                               input line.
; 1072        1196  1  !
; 1073        1197  1  ! Outputs
; 1074        1198  1  !
; 1075        1199  1  !       A command execution network is constructed,
; 1076        1200  1  !       consisting of a verb node for the SPAWN
; 1077        1201  1  !       verb, and possibly a noun node for the argument
; 1078        1202  1  !--
; 1079        1203  2      BEGIN
; 1080        1204  2      MAP
; 1081        1205  2          parse_stg_desc : REF BLOCK [,BYTE];
; 1082        1206  2
; 1083        1207  2      LOCAL
; 1084        1208  2          char,
; 1085        1209  2          dummy_mess_vect: REF VECTOR,       ! Address for message vector returned
; 1086        1210  2                                             !     from DBG$NPARSE_SPAWN
; 1087        1211  2          len,                               ! Length of command line
; 1088        1212  2          parse_stg_ptr,                     ! Pointer into command line
; 1089        1213  2          stg : REF VECTOR [,BYTE],          ! Pointer to a new copy of the
; 1090        1214  2                                             !     command line
; 1091        1215  2          verb_node;                         ! Pointer to the head of the command
; 1092        1216  2                                             !     execution tree for SPAWN
; 1093        1217  2
; 1094        1218  2      ! Call the 'new style' parse network for the spawn
; 1095        1219  2      ! command. This builds a command execution network.
; 1096        1220  2      ! We return a pointer to the verb node.
; 1097        1221  2      !
; 1098        1222  2      ! First allocate space for the verb node.
; 1099        1223  2      !
; 1100        1224  2      verb_node = dbg$get_tempmem (dbg$k_verb_node_size);
; 1101        1225  2
; 1102        1226  2      ! Then stuff a carriage return character at the end
; 1103        1227  2      ! of the input line since this is what the new style
; 1104        1228  2      ! parser expects to see. Also, translate the line to
; 1105        1229  2      ! upper case (the new debugger does this; the old does not)
; 1106        1230  2      !
; 1107        1231  2      len = .parse_stg_desc[dsc$w_length];
; 1108        1232  2      stg = dbg$get_tempmem (1+(1+.len)/%UPVAL);
; 1109        1233  2      parse_stg_ptr = ch$ptr(.parse_stg_desc[dsc$a_pointer]);
; 1110        1234  2      INCR i FROM 0 TO .len-1 DO
; 1111        1235  3          BEGIN
; 1112        1236  3          char = ch$rchar_a(parse_stg_ptr);
; 1113        1237  3          IF .char GEQ %C'a' AND .char LEQ %C'z'
; 1114        1238  3          THEN
; 1115            1239  4                   stg[.i] = .char - (%C'a'-%C'A')
; 1116            1240  3               ELSE
; 1117            1241  3                   stg[.i] = .char;
; 1118            1242  2               END;
; 1119            1243  2           stg[.len] = dbg$k_car_return;
; 1120            1244  2           parse_stg_desc[dsc$a_pointer] = .stg;
; 1121            1245  2           parse_stg_desc[dsc$w_length] =
; 1122            1246  2               .parse_stg_desc[dsc$w_length] + 1;
; 1123            1247  2
; 1124            1248  2           ! Now call the parser on the remainder of the input line
; 1125            1249  2           !
; 1126            1250  2           IF NOT dbg$nparse_spawn (.parse_stg_desc,
; 1127            1251  2               .verb_node, dummy_mess_vect)
; 1128            1252  2           THEN
; 1129            1253  2               ! If the above routine does not return success, then we signal
; 1130            1254  2               ! an error using the error message vector that we got back.
; 1131            1255  2               !
; 1132            1256  3               BEGIN
; 1133            1257  3               EXTERNAL ROUTINE
; 1134            1258  3                   LIB$SIGNAL : ADDRESSING_MODE(GENERAL);
; 1135            1259  3               BUILTIN
; 1136            1260  3                   CALLG;
; 1137            1261  3               CALLG (.dummy_mess_vect, lib$signal);
; 1138            1262  2               END;
; 1139            1263  2
; 1140            1264  2           ! Restore pointer field of PARSE_STG_DESC since this can be wiped out
; 1141            1265  2           ! during new style parsing.
; 1142            1266  2           !
; 1143            1267  2           IF .parse_stg_desc[dsc$a_pointer] EQL 0
; 1144            1268  2           THEN
; 1145            1269  2               parse_stg_desc[dsc$a_pointer] = .stg+.len;
; 1146            1270  2
; 1147            1271  2           ! Finally, return a pointer to the verb node.
; 1148            1272  2           !
; 1149            1273  2           RETURN .verb_node
; 1150            1274  2
; 1151            1275  1           END; ! dbg$parse_spawn


                                                           .EXTRN  LIBSSIGNAL

                                         00FC 00000        .ENTRY  DBG$PARSE_SPAWN, Save R2,R3,R4,R5,R6,R7         ; 1182
                       57 00000000G  00   9E 00002         MOVAB   DBG$GET_TEMPMEM, R7                             ;
                       5E            04   C2 00009         SUBL2   #4, SP                                          ;
                                     03   DD 0000C         PUSHL   #3                                              ; 1224
                       67            01   FB 0000E         CALLS   #1, DBG$GET_TEMPMEM                             ;
                       56            50   D0 00011         MOVL    R0, VERB_NODE                                   ;
                       54        04  AC   D0 00014         MOVL    PARSE_STG_DESC, R4                              ; 1231
                       52            64   3C 00018         MOVZWL  (R4), LEN                                       ;
                       50        01  A2   9E 0001B         MOVAB   1(R2), R0                                       ; 1232
                       50            04   C6 0001F         DIVL2   #4, R0                                          ;
                                 01  A0   9F 00022         PUSHAB  1(R0)                                           ;
                       67            01   FB 00025         CALLS   #1, DBG$GET_TEMPMEM                             ;
                       53            50   D0 00028         MOVL    R0, STG                                         ;
                       55        04  A4   D0 0002B         MOVL    4(R4), PARSE_STG_PTR                            ; 1233
                       50            01   CE 0002F         MNEGL   #1, I                                           ; 1239
```

```
                                        20  11 00032         BRB     3$                                        ;
                             51         85  9A 00034 1$:     MOVZBL  (PARSE_STG_PTR)+, CHAR                    ; 1236
                 00000061    8F         51  D1 00037         CMPL    CHAR, #97                                 ; 1237
                                        10  19 0003E         BLSS    2$                                        ;
                 0000007A    8F         51  D1 00040         CMPL    CHAR, #122                                ;
                                        07  14 00047         BGTR    2$                                        ;
         6043                51         20  83 00049         SUBB3   #32, CHAR, (I)[STG]                       ; 1239
                                        04  11 0004E         BRB     3$                                        ;
                           6043         51  90 00050 2$:     MOVB    CHAR, (I)[STG]                            ; 1241
           DC                50         52  F2 00054 3$:     AOBLSS  LEN, I, 1$                                ; 1234
                           6243         0D  90 00058         MOVB    #13, (LEN)[STG]                           ; 1243
                       04    A4         53  D0 0005C         MOVL    STG, 4(R4)                                ; 1244
                                        64  B6 00060         INCW    (R4)                                      ; 1246
                               4050     8F  BB 00062         PUSHR   #^M<R4,R6,SP>                             ; 1250
                     FCE0    CF         03  FB 00066         CALLS   #3, DBG$NPARSE_SPAWN                      ;
                             08         50  E8 0006B         BLBS    R0, 4$                                    ;
                0000000G     00     00  BE  FA 0006E         CALLG   @DUMMY_MESS_VECT, LIB$SIGNAL              ; 1261
                             50     04  AC  D0 00076 4$:     MOVL    PARSE_STG_DESC, R0                        ; 1267
                                    04  A0  D5 0007A         TSTL    4(R0)                                     ;
                                        05  12 0007D         BNEQ    5$                                        ;
      04    A0               53         52  C1 0007F         ADDL3   LEN, STG, 4(R0)                           ; 1269
                             50         56  D0 00084 5$:     MOVL    VERB_NODE, R0                             ; 1273
                                            04 00087         RET                                               ; 1275

; Routine Size:  136 bytes,    Routine Base:  DBG$CODE + 0606
; 1153          1276  1 ROUTINE get_param (input_desc, paren_flag: BYTE, result_addr) =
; 1154          1277  1 !++
; 1155          1278  1 ! Routine Description
; 1156          1279  1 !
; 1157          1280  1 !       This routine collects a parameter from the input stream. It allocates
; 1158          1281  1 !       permanent memory and copies the parameter into that memory. A
; 1159          1282  1 !       parameter may be inside of double quotes ("), in which case this
; 1160          1283  1 !       routine reads to the closing quote. Or, if it is not inside of
; 1161          1284  1 !       quotes then comma (or possibly right paren) is the terminator.
; 1162          1285  1 !
; 1163          1286  1 ! Inputs
; 1164          1287  1 !
; 1165          1288  1 !       input_desc -    A string descriptor for the remaining input.
; 1166          1289  1 !       paren_flag -    TRUE if the parameter list is parenthesized. This
; 1167          1290  1 !                       affects the parsing of an individual parameter in
; 1168          1291  1 !                       that a closing paren is treated as a terminator.
; 1169          1292  1 !       result_addr -   The address to leave a pointer to the result.
; 1170          1293  1 !
; 1171          1294  1 ! Outputs
; 1172          1295  1 !
; 1173          1296  1 !       A counted string is constructed out of permanent memory and filled
; 1174          1297  1 !       in with the parameter that is read, and a pointer to this string
; 1175          1298  1 !       is left in result_addr.
; 1176          1299  1 !       The value TRUE is returned if a parameter is successfully read.
; 1177          1300  1 !       The value FALSE is returned if a parameter cannot be read.
; 1178          1301  1 !--
; 1179          1302  2     BEGIN
; 1180          1303  2
; 1181          1304  2     MAP
; 1182          1305  2         input_desc: REF dbg$stg_desc,
; 1183          1306  2         paren_flag: BYTE;
; 1184          1307  2
; 1185          1308  2     LOCAL
; 1186          1309  2         char: BYTE,                     ! Holds a character from the stream
; 1187          1310  2         chars_read,                     ! Count of number of characters read
; 1188          1311  2         input_ptr,                      ! Pointer into current position in input stream
; 1189          1312  2         output_ptr,                     ! Pointer into result string
; 1190          1313  2         prev_char: BYTE,                ! Holds previously-read character
; 1191          1314  2         prev_input_ptr,                 ! Pointer to previous position in input stream
; 1192          1315  2         quote_flag: BYTE,               ! True if the parameter is quoted
; 1193          1316  2         result: REF VECTOR[,BYTE],      ! Points to the result string
; 1194          1317  2         saved_input_ptr,                ! Saved value of input pointer.
; 1195          1318  2         tot_chars_read;                 ! Count of total characters read
; 1196          1319  2
; 1197          1320  2     ! The get_char macro is used when we want to read another character.
; 1198          1321  2     !
; 1199        M 1322  2     MACRO get_char =
; 1200        M 1323  2         prev_input_ptr = .input_ptr;
; 1201        M 1324  2         char = ch$rchar_a (input_ptr);
; 1202          1325  2         tot_chars_read = .tot_chars_read + 1%;
; 1203          1326  2
; 1204          1327  2     ! Initialize some variables.
; 1205          1328  2     !
; 1206          1329  2     input_ptr = .input_desc [dsc$a_pointer];
; 1207          1330  2     tot_chars_read = 0;
; 1208          1331  2     chars_read = 0;
; 1209          1332  2     prev_char = %C' ';
; 1210          1333  2      char = %C' ';
; 1211          1334  2
; 1212          1335  2      ! First skip leading blanks.
; 1213          1336  2      !
; 1214          1337  2      WHILE .char EQL dbg$k_blank
; 1215          1338  2        AND .tot_chars_read LSS .input_desc [dsc$w_length]
; 1216          1339  2          DO
; 1217          1340  3          BEGIN
; 1218          1341  3          get_char;
; 1219          1342  2          END;
; 1220          1343  2
; 1221          1344  2      ! Check for leading quote.
; 1222          1345  2      !
; 1223          1346  2      IF .char EQL dbg$k_dblquote
; 1224          1347  2      THEN
; 1225          1348  3          BEGIN
; 1226          1349  3          (.prev_input_ptr)<0,8,0> = 0;
; 1227          1350  3          quote_flag = TRUE;
; 1228          1351  3          get_char;
; 1229          1352  3          END
; 1230          1353  2      ELSE
; 1231          1354  2          quote_flag = FALSE;
; 1232          1355  2
; 1233          1356  2      saved_input_ptr = ch$plus (.input_ptr, -1);
; 1234          1357  2
; 1235          1358  2      ! Loop through the string representing the parameter,
; 1236          1359  2      ! until a terminator is found.
; 1237          1360  2      !
; 1238          1361  2      WHILE .char NEQ dbg$k_car_return
; 1239          1362  2          AND .tot_chars_read LSS .input_desc[dsc$w_length]
; 1240          1363  2          DO
; 1241          1364  3          BEGIN
; 1242          1365  3
; 1243          1366  3            ! If we are inside of quotes, the only terminator is a quote (").
; 1244          1367  3            ! Doubled quotes (""), however, must be undoubled.
; 1245          1368  3            !
; 1246          1369  3            IF .quote_flag
; 1247          1370  3            THEN
; 1248          1371  4                BEGIN
; 1249          1372  4
; 1250          1373  4                ! Check for ""
; 1251          1374  4                !
; 1252          1375  4                IF .char EQL dbg$k_dblquote
; 1253          1376  4                THEN
; 1254          1377  4
; 1255          1378  4                    ! Check for doubled quotes
; 1256          1379  4                    !
; 1257          1380  4                    IF .prev_char EQL dbg$k_dblquote
; 1258          1381  4                    THEN
; 1259          1382  5                        BEGIN
; 1260          1383  5
; 1261          1384  5                        ! Mark the doubled quote with a 0.
; 1262          1385  5                        !
; 1263          1386  5                        (.prev_input_ptr)<0,8,0> = 0;
; 1264          1387  5                        chars_read = .chars_read - 1;
; 1265          1388  5                        END
; 1266          1389  4                    ELSE
```

```
4                  ! Must be single quote. Since this terminates the
4                  ! string, exit the loop.
4                  !
4                  EXITLOOP;
4          END
3      ELSE
3
3          ! This else clause is reached when quote_flag is false.
3          !
4          BEGIN
4
4          ! Comma is a terminator if not inside of quotes.
4          !
4          IF .char EQL dbg$k_comma
4          THEN
5              BEGIN
5              ! Decrement tot_chars_read to back up to before the comma.
5              tot_chars_read = .tot_chars_read - 1;
5              EXITLOOP;
4              END;
4
4          ! Right paren is a terminator if not inside of quotes
4          ! and paren_flag is true.
4          !
4          IF .paren_flag AND .char EQL dbg$k_right_parenthesis
4          THEN
5              BEGIN
5              ! Decrement tot_chars_read to back up to before the comma.
5              tot_chars_read = .tot_chars_read - 1;
5              EXITLOOP;
4              END;
3          END;
3
3      ! Set up for next time around loop.
3      !
3      prev_char = .char;
3      get_char;
3      chars_read = .chars_read + 1;
2      END;
2
2  ! If no characters were read, then we failed to parse a parameter.
2  !
2  IF .chars_read EQL 0
2  THEN
2      RETURN FALSE;
2
2  ! Allocate space for the result.
2  !
2  result = dbg$get_memory ((.chars_read+1+3)/%UPVAL);
2
2  ! Copy the parameter into the allocated area.
2  !
2  result[0] = .chars_read;
2  output_ptr = result[1];
2  INCR i FROM 1 TO .chars_read DO
3      BEGIN
3      char = ch$rchar_a (saved_input_ptr);
```

```
; 1324          1447  3             WHILE .char EQL 0 DO
; 1325          1448  3                 char = ch$rchar_a (saved_input_ptr);
; 1326          1449  3             ch$wchar_a (.char, output_ptr);
; 1327          1450  2             END;
; 1328          1451  2
; 1329          1452  2         ! Fill in result_addr.
; 1330          1453  2         !
; 1331          1454  2         .result_addr = .result;
; 1332          1455  2
; 1333          1456  2         ! Update input descriptor.
; 1334          1457  2         !
; 1335          1458  2         input_desc [dsc$w_length] = .input_desc [dsc$w_length] - .tot_chars_read;
; 1336          1459  2         input_desc [dsc$a_pointer] =
; 1337          1460  2             ch$plus (.input_desc[dsc$a_pointer], .tot_chars_read);
; 1338          1461  2
; 1339          1462  2         RETURN TRUE;
; 1340          1463  2
; 1341          1464  1         END; ! get_param




                                          01FC 00000 GET_PARAM:
                                                            .WORD   Save R2,R3,R4,R5,R6,R7,R8                          ; 1276
                        54       04    AC   D0 00002        MOVL    INPUT_DESC, R4                                     ; 1329
                        50       04    A4   D0 00006        MOVL    4(R4), INPUT_PTR                                   ;
                                       55   D4 0000A        CLRL    TOT_CHARS_READ                                     ; 1330
                                       52   D4 0000C        CLRL    CHARS_READ                                         ; 1331
                        57             20   90 0000E        MOVB    #32, PREV_CHAR                                     ; 1332
                        56             20   90 00011        MOVB    #32, CHAR                                          ; 1333
                        20             56   91 00014 1$:    CMPB    CHAR, #32                                          ; 1337
                                       11   12 00017        BNEQ    2$                                                 ;
        55        64    10             00   ED 00019        CMPZV   #0, #16, (R4), TOT_CHARS_READ                      ; 1338
                                       0A   15 0001E        BLEQ    2$                                                 ;
                        51             50   D0 00020        MOVL    INPUT_PTR, PREV_INPUT_PTR                          ; 1340
                        56             80   90 00023        MOVB    (INPUT_PTR)+, CHAR                                 ;
                                       55   D6 00026        INCL    TOT_CHARS_READ                                     ;
                                       EA   11 00028        BRB     1$                                                 ; 1337
                        22             56   91 0002A 2$:    CMPB    CHAR, #34                                          ; 1346
                                       0F   12 0002D        BNEQ    3$                                                 ;
                                       61   94 0002F        CLRB    (PREV_INPUT_PTR)                                   ; 1349
                        58             01   90 00031        MOVB    #1, QUOTE_FLAG                                     ; 1350
                        51             50   D0 00034        MOVL    INPUT_PTR, PREV_INPUT_PTR                          ;
                        56             80   90 00037        MOVB    (INPUT_PTR)+, CHAR                                 ;
                                       55   D6 0003A        INCL    TOT_CHARS_READ                                     ;
                                       02   11 0003C        BRB     4$                                                 ; 1346
                                       58   94 0003E 3$:    CLRB    QUOTE_FLAG                                         ; 1354
                        53       FF    A0   9E 00040 4$:    MOVAB   -1(R0), SAVED_INPUT_PTR                            ; 1356
                        0D             56   91 00044 5$:    CMPB    CHAR, #13                                          ; 1361
                                       3B   13 00047        BEQL    9$                                                 ;
        55        64    10             00   ED 00049        CMPZV   #0, #16, (R4), TOT_CHARS_READ                      ; 1362
                                       34   15 0004E        BLEQ    9$                                                 ;
                        10             58   E9 00050        BLBC    QUOTE_FLAG, 6$                                     ; 1369
                        22             56   91 00053        CMPB    CHAR, #34                                          ; 1375
                                       1D   12 00056        BNEQ    8$                                                 ;
                        22             57   91 00058        CMPB    PREV_CHAR, #34                                     ; 1380
```

```
                                             27  12 0005B          BNEQ    9$                                  ;
                                             61  94 0005D          CLRB    (PREV_INPUT_PTR)                    ; 1386
                                             52  D7 0005F          DECL    CHARS_READ                          ; 1387
                                             12  11 00061          BRB     8$                                  ; 1380
                               2C            56  91 00063 6$:      CMPB    CHAR, #44                           ; 1403
                                             09  13 00066          BEQL    7$                                  ;
                               09      08    AC  E9 00068          BLBC    PAREN_FLAG, 8$                      ; 1414
                               29            56  91 0006C          CMPB    CHAR, #41                           ;
                                             04  12 0006F          BNEQ    8$                                  ;
                                             55  D7 00071 7$:      DECL    TOT_CHARS_READ                      ; 1418
                                             0F  11 00073          BRB     9$                                  ; 1416
                               57            56  90 00075 8$:      MOVB    CHAR, PREV_CHAR                     ; 1425
                               51            50  D0 00078          MOVL    INPUT_PTR, PREV_INPUT_PTR           ;
                               56            80  90 0007B          MOVB    (INPUT_PTR)+, CHAR                  ;
                                             55  D6 0007E          INCL    TOT_CHARS_READ                      ;
                                             52  D6 00080          INCL    CHARS_READ                          ; 1427
                                             C0  11 00082          BRB     5$                                  ; 1361
                                             52  D5 00084 9$:      TSTL    CHARS_READ                          ; 1432
                                             38  13 00086          BEQL    12$                                 ;
                               50      04    A2  9E 00088          MOVAB   4(R2), R0                           ; 1438
              7E               50            04  C7 0008C          DIVL3   #4, R0, -(SP)                       ;
                   00000000G   00            01  FB 00090          CALLS   #1, DBG$GET_MEMORY                  ;
                               57            50  D0 00097          MOVL    R0, RESULT                          ;
                               67            52  90 0009A          MOVB    CHARS_READ, (RESULT)                ; 1442
                               50      01    A7  9E 0009D          MOVAB   1(R7), OUTPUT_PTR                   ; 1443
                                             51  D4 000A1          CLRL    I                                   ; 1444
                                             08  11 000A3          BRB     11$                                 ;
                               56            83  90 000A5 10$:     MOVB    (SAVED_INPUT_PTR)+, CHAR            ; 1446
                                             FB  13 000A8          BEQL    10$                                 ; 1447
                               80            56  90 000AA          MOVB    CHAR, (OUTPUT_PTR)+                 ; 1449
              F4               51            52  F3 000AD 11$:     AOBLEQ  CHARS_READ, I, 10$                  ; 1444
                          0C   BC            57  D0 000B1          MOVL    RESULT, @RESULT_ADDR                ; 1454
                               64            55  A2 000B5          SUBW2   TOT_CHARS_READ, (R4)                ; 1458
                          04   A4            55  C0 000B8          ADDL2   TOT_CHARS_READ, 4(R4)               ; 1460
                               50            01  D0 000BC          MOVL    #1, R0                              ; 1462
                                                 04 000BF          RET                                         ;
                                             50  D4 000C0 12$:     CLRL    R0                                  ; 1464
                                                 04 000C2          RET                                         ;

; Routine Size:  195 bytes,    Routine Base:  DBG$CODE + 068E
; 1343         1465  1 GLOBAL ROUTINE DBG$NPARSE_EXIT (INPUT_DESC, VERB_NODE, MESSAGE_VECT) =
; 1344         1466  1
; 1345         1467  1 !++
; 1346         1468  1 ! FUNCTIONAL DESCRIPTION:
; 1347         1469  1 !
; 1348         1470  1 !       This routine is the parse network for the EXIT command. Since the EXIT
; 1349         1471  1 !       verb has already been recognized in dbg$nparse_cmd, and nothing else may
; 1350         1472  1 !       follow that keyword, simply return success.
; 1351         1473  1 !
; 1352         1474  1 ! FORMAL PARAMETERS:
; 1353         1475  1 !
; 1354         1476  1 !       input_desc -            string descriptor for remainder of input line
; 1355         1477  1 !
; 1356         1478  1 !       verb_node -             command verb node - the head of the command execution
; 1357         1479  1 !                               tree.
; 1358         1480  1 !
; 1359         1481  1 !       message_vect -          the address of a longword to contain the address
; 1360         1482  1 !                               of a standard message argument vector
; 1361         1483  1 !
; 1362         1484  1 ! IMPLICIT INPUTS:
; 1363         1485  1 !
; 1364         1486  1 !       NONE
; 1365         1487  1 !
; 1366         1488  1 ! IMPLICIT OUTPUTS:
; 1367         1489  1 !
; 1368         1490  1 !       NONE -    The command execution tree is unaffected by this network.
; 1369         1491  1 !
; 1370         1492  1 ! ROUTINE VALUE:        unsigned integer lomgword completion code
; 1371         1493  1 !
; 1372         1494  1 ! COMPLETION CODES:
; 1373         1495  1 !
; 1374         1496  1 !       sts$k_success (1) -     Always returned as the value of this routine
; 1375         1497  1 !
; 1376         1498  1 ! SIDE EFFECTS:
; 1377         1499  1 !
; 1378         1500  1 !       NONE
; 1379         1501  1 !
; 1380         1502  1 !--
; 1381         1503  1
; 1382         1504  2    BEGIN
; 1383         1505  2
; 1384         1506  2    RETURN sts$k_success;
; 1385         1507  2
; 1386         1508  1    END;                            ! End of dbg$nparse_exit



                                      0000 00000        .ENTRY  DBG$NPARSE_EXIT, Save nothing                    ; 1465
                    50             01  D0 00002        MOVL    #1, R0                                            ; 1506
                                        04 00005        RET                                                       ; 1508

; Routine Size:  6 bytes,    Routine Base:  DBG$CODE + 0751


; 1387         1509  1
```

```
1 GLOBAL ROUTINE DBG$NEXECUTE_EXIT (VERB_NODE, MESSAGE_VECT) =
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine is the execution network for the EXIT command. An EXIT issued
1 !       from an indirect command file or DO action buffer means to cease taking
1 !       commands from the present buffer. In this case, a buffer is removed from
1 !       the command input stream. An EXIT issued from the terminal means to exit
1 !       the debugger.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       verb_node -     The head of the command excution tree which in the case
1 !                       of EXIT consists only of this one node. The value of the
1 !                       verb node is used only to direct processing to this routine
1 !                       and is not used by dbg$nexecute_exit itself.
1 !
1 !       message_vect -  The address of a longword to contain the address of a
1 !                       message argument vector
1 !
1 ! IMPLICIT INPUTS:
1 !
1 !
1 !       dbg$gb_def_out -                        "   "   "     output configuration structure
1 !
1 !       dbg$gl_cishead -                        "   "   "     head of command input stream
1 !
1 ! IMPLICIT OUTPUTS:
1 !
1 !       The above data structures may be altered.
1 !
1 !       On failure, a message argument vector is returned.
1 !
1 ! ROUTINE VALUE:
1 !
1 !       An unsigned integer longword completion code.
1 !
1 ! COMPLETION CODES:
1 !
1 !       sts$k_severe (4) -      The command could not be executed.
1 !
1 !       sts$k_success (1) -     The command was executed.
1 !
1 ! SIDE EFFECTS:
1 !
1 !       This routine may force the exit of the program image. Nodes may be
1 !       removed from the command input stream.
1 !
1 !--
1
2     BEGIN
2
2     LOCAL
2         count,                  ! Temporary counter for number of levels to exit.
2         link: REF cis$link;! Pointer to a CIS link.
2
```

```
!++
! When an EXIT is entered to the debugger we want to 'go up a level' to
! the next link in the command input stream. This is done for indirect command
! files by removing the links for the RAB as well as the associated buffer.
!--

! First walk past any layers of IF, WHILE, or REPEAT that we may be in.
!
count = 0;
link = .dbg$gl_cishead;
WHILE  .link [cis$b_input_type] EQL dbg$k_cis_if
    OR .link [cis$b_input_type] EQL dbg$k_cis_while
    OR .link [cis$b_input_type] EQL dbg$k_cis_repeat
    OR .link [cis$b_input_type] EQL dbg$k_cis_for
    DO BEGIN
    count = .count + 1;
    link = .link [cis$a_next_link]
    END;

! Now case on the type of buffer we are looking at.
!
CASE .link[cis$b_input_type] FROM dbg$k_cis_minimum TO dbg$k_cis_maximum OF
    SET

    ! Ordinary input buffer.
    !
    [dbg$k_cis_inpbuf] :
            BEGIN
            LOCAL
                prev_link : REF cis$link;

            ! Look at the CIS above the input buffer CIS.
            !
            prev_link = .link [cis$a_next_link];
            CASE .prev_link [cis$b_input_type] FROM dbg$k_cis_minimum
                                              TO dbg$k_cis_maximum OF
                SET

                ! If it is cis_dbg$input then we are taking commands
                ! from DBG$INPUT. In this case we want to exit DEBUG.
                !
                [dbg$k_cis_dbg$input] :
                    BEGIN

                    ! We are accepting command from DBG$INPUT, so just
                    ! exit to the system CLI.
                    !

                    IF .dbg$gb_def_out [out_log]
                    THEN
                        $CLOSE (FAB = dbg$gl_logfab);       ! Close log file
                    dbg$gb_def_out[out_log] = FALSE;
                    dbg$gv_control[dbg$v_control_user] = True;
                    dbg$gv_control[dbg$v_control_exit] = True;

                    ! Call the SMG exit handler which restores the
                    ! terminal back to application or numeric mode,
4                   ! depending on what it was at entry.
4                   !
4                   IF .dbg$gl_smg_exit_handler NEQ 0
4                   THEN
4                       (.dbg$gl_smg_exit_handler)();
4
4                   $EXIT (code = .dbg$gl_exit_status OR sts$m_inhib_msg);
3                   END;
3
3
3               ! If it is a RAB, we are in an indirect command file.
3               !
3               [dbg$k_cis_rab] :
4                   BEGIN
4
4                   ! Remove all CIS buffers we have walked past.
4                   !
4                   INCR i FROM 1 to .count+2 DO
4                       IF NOT dbg$ncis_remove (TRUE, .message_vect)
4                       THEN
4                           RETURN sts$k_severe;
4                   RETURN sts$k_success;
3                   END;
3
3               ! We can get inpbuf's nested inside of each other
3               ! when executing DO command lists.
3               !
3               [INRANGE] :
4                   BEGIN
4
4                   ! Remove all CIS buffers we have walked past.
4                   !
4                   INCR i FROM 1 to .count+1 DO
4                       IF NOT dbg$ncis_remove (TRUE, .message_vect)
4                       THEN
4                           RETURN sts$k_severe;
4                   RETURN sts$k_success;
3                   END;
3
3
3               ! Anything else is a DEBUG error.
3               !
3               [OUTRANGE] :
4                   BEGIN
4                   $DBG_ERROR('DBGATSIGN\DBG$NEXECUTE_EXIT');
3                   END;
3
3               TES;
3
2           END; ! cis_inpbuf case
2
2   ! If we are accepting commands from an action buffer
2   ! we go up a level by removing that buffer (and any
2   ! buffers that may be present for loops).
2   !
2   [dbg$k_cis_acbuf,
2    dbg$k_cis_screen] :
```

```
; 1560          1681  3                     BEGIN
; 1561          1682  3                     INCR i FROM 1 TO .count+1 DO
; 1562          1683  3                         IF NOT dbg$ncis_remove (TRUE, .message_vect)
; 1563          1684  3                         THEN
; 1564          1685  3                             RETURN sts$k_severe;
; 1565          1686  2                     END;
; 1566          1687  2
; 1567          1688  2             ! Anything else is a DEBUG internal coding error.
; 1568          1689  2             !
; 1569          1690  2             [INRANGE,
; 1570          1691  2              OUTRANGE] :
; 1571          1692  3                     BEGIN
; 1572          1693  3                     $DBG_ERROR('DBGATSIGN\DBG$NEXECUTE_EXIT');
; 1573          1694  2                     END;
; 1574          1695  2
; 1575          1696  2             TES;
; 1576          1697  2
; 1577          1698  2         RETURN sts$k_success;
; 1578          1699  2
; 1579          1700  1         END;                            ! End of dbg$nexecute_exit



                                                                        .PSECT  DBG$PLIT,NOWRT,  SHR,  PIC,0

24  47  42  44  5C  4E  47  49  53  54  41  47  42  44  1B  000B5 P.AAR:  .ASCII  <27>\DBGATSIGN\<92>\DBG$NEXECUTE_EXIT\    ;
        54  49  58  45  5F  45  54  55  43  45  58  45  4E  000C4                                                          ;
24  47  42  44  5C  4E  47  49  53  54  41  47  42  44  1B  000D1 P.AAS:  .ASCII  <27>\DBGATSIGN\<92>\DBG$NEXECUTE_EXIT\    ;
        54  49  58  45  5F  45  54  55  43  45  58  45  4E  000E0                                                          ;

                                                                        .EXTRN  SYS$CLOSE, SYS$EXIT

                                                                        .PSECT  DBG$CODE,NOWRT,  SHR,  PIC,0

                                                      003C  00000       .ENTRY  DBG$NEXECUTE_EXIT, Save R2,R3,R4,R5       ; 1510
                                    55  00000000G  00   9E  00002       MOVAB   DBG$GB_DEF_OUT, R5                        ;
                                    54  00000000G  00   9E  00009       MOVAB   DBG$NCIS_REMOVE, R4                       ;
                                                   52   D4  00010       CLRL    COUNT                                     ; 1575
                                    53  00000000G  00   D0  00012       MOVL    DBG$GL_CISHEAD, LINK                      ; 1576
                                    06         02  A3   91  00019 1$:   CMPB    2(LINK), #6                               ; 1577
                                                   12   13  0001D       BEQL    2$                                        ;
                                    05         02  A3   91  0001F       CMPB    2(LINK), #5                               ; 1578
                                                   0C   13  00023       BEQL    2$                                        ;
                                    04         02  A3   91  00025       CMPB    2(LINK), #4                               ; 1579
                                                   06   13  00029       BEQL    2$                                        ;
                                    07         02  A3   91  0002B       CMPB    2(LINK), #7                               ; 1580
                                                   08   12  0002F       BNEQ    3$                                        ;
                                                   52   D6  00031 2$:   INCL    COUNT                                     ; 1582
                                    53         08  A3   D0  00033       MOVL    8(LINK), LINK                             ; 1583
                                                   E0   11  00037       BRB     1$                                        ;
                      08            00         02  A3   8F  00039 3$:   CASEB   2(LINK), #0, #8                           ; 1588
       00B7           001A          0012           0012     0003E 4$:   .WORD   5$-4$,-                                   ;
       0012           0012          0012           0012     00046               5$-4$,-                                   ;
                                                   00B7     0004E               6$-4$,-                                   ;
                                                                                19$-4$,-                                  ;
                                                                                5$-4$,-                                   ;
                                                                                5$-4$,-                                   ;
```

```
                                                                                     5$-4$,-                                 ;
                                                                                     5$-4$,-                                 ;
                                                                                     19$-4$                                  ;
                                            00000000'  EF  9F 00050 5$:     PUSHAB   P.AAS                                   ; 1693
                                                       21  11 00056         BRB      8$                                      ;
                                         50        08  A3  D0 00058 6$:     MOVL     8(LINK), PREV_LINK                      ; 1600
                           08            00        02  A0  8F 0005C         CASEB    2(PREV_LINK), #0, #8                    ; 1601
          007D           007D          0065          0029     00061 7$:     .WORD    9$-7$,-                                 ;
          007D           007D          007D          007D     00069                  12$-7$,-                                ;
                                                     007D     00071                  15$-7$,-                                ;
                                                                                     15$-7$,-                                ;
                                                                                     15$-7$,-                                ;
                                                                                     15$-7$,-                                ;
                                                                                     15$-7$,-                                ;
                                                                                     15$-7$,-                                ;
                                                                                     15$-7$                                  ;
                                            00000000'  EF  9F 00073         PUSHAB   P.AAR                                   ; 1668
                                                       01  DD 00079 8$:     PUSHL    #1                                      ;
                                             00028362  8F  DD 0007B         PUSHL    #164706                                 ;
                              00000000G  00            03  FB 00081         CALLS    #3, LIB$SIGNAL                          ;
                                                       69  11 00088         BRB      18$                                     ; 1601
                                         0D            65  E9 0008A 9$:     BLBC     DBG$GB_DEF_OUT, 10$                     ; 1615
                                            00000000G  00  9F 0008D         PUSHAB   DBG$GL_LOGFAB                           ; 1617
                              00000000G  00            01  FB 00093         CALLS    #1, SYS$CLOSE                           ;
                                                       65  94 0009A 10$:    CLRB     DBG$GB_DEF_OUT                          ; 1618
                              00000000G  00      0110  8F  A8 0009C         BISW2    #272, DBG$GV_CONTROL                    ; 1619
                                         50 00000000G  00  D0 000A5         MOVL     DBG$GL_SMG_EXIT_HANDLER, R0             ; 1626
                                                       03  13 000AC         BEQL     11$                                     ;
                                         60            00  FB 000AE         CALLS    #0, (R0)                                ; 1628
                           7E 00000000G  00  10000000  8F  C9 000B1 11$:    BISL3    #268435456, DBG$GL_EXIT_STATUS, -(SP)   ; 1630
                              00000000G  00            01  FB 000BD         CALLS    #1, SYS$EXIT                            ;
                                                       48  11 000C4         BRB      23$                                     ; 1601
                                         52            02  C0 000C6 12$:    ADDL2    #2, R2                                  ; 1641
                                                       53  D4 000C9         CLRL     I                                       ; 1642
                                                       0B  11 000CB         BRB      14$                                     ;
                                                   08  AC  DD 000CD 13$:    PUSHL    MESSAGE_VECT                            ;
                                                       01  DD 000D0         PUSHL    #1                                      ;
                                         64            02  FB 000D2         CALLS    #2, DBG$NCIS_REMOVE                     ;
                                         2E            50  E9 000D5         BLBC     R0, 21$                                 ;
                           F1            53            52  F3 000D8 14$:    AOBLEQ   R2, I, 13$                              ;
                                                       30  11 000DC         BRB      23$                                     ; 1645
                                                       52  D6 000DE 15$:    INCL     R2                                      ; 1656
                                                       53  D4 000E0         CLRL     I                                       ; 1657
                                                       0B  11 000E2         BRB      17$                                     ;
                                                   08  AC  DD 000E4 16$:    PUSHL    MESSAGE_VECT                            ;
                                                       01  DD 000E7         PUSHL    #1                                      ;
                                         64            02  FB 000E9         CALLS    #2, DBG$NCIS_REMOVE                     ;
                                         17            50  E9 000EC         BLBC     R0, 21$                                 ;
                           F1            53            52  F3 000EF 17$:    AOBLEQ   R2, I, 16$                              ;
                                                       19  11 000F3 18$:    BRB      23$                                     ; 1660
                                                       52  D6 000F5 19$:    INCL     R2                                      ; 1682
                                                       53  D4 000F7         CLRL     I                                       ; 1683
                                                       0F  11 000F9         BRB      22$                                     ;
                                                   08  AC  DD 000FB 20$:    PUSHL    MESSAGE_VECT                            ;
                                                       01  DD 000FE         PUSHL    #1                                      ;
                                         64            02  FB 00100         CALLS    #2, DBG$NCIS_REMOVE                     ;
                                         04            50  E8 00103         BLBS     R0, 22$                                 ;
```

```
                    50          04  D0 00106 21$:    MOVL    #4, R0                  ; 1685
                                    04 00109         RET                             ;
           ED       53          52  F3 0010A 22$:    AOBLEQ  R2, I, 20$              ; 1683
                    50          01  D0 0010E 23$:    MOVL    #1, R0                  ; 1698
                                    04 00111         RET                             ; 1700

; Routine Size:  274 bytes,    Routine Base:  DBG$CODE + 0757

; 1580          1701  1
```

```
1 GLOBAL ROUTINE DBG$NPARSE_EXITLOOP (INPUT_DESC, VERB_NODE, MESSAGE_VECT) =
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine is the parse network for the EXITLOOP command.
1 !       A single noun node is constructed containing the integer
1 !       argument, if there is one.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       input_desc -            string descriptor for the remaining input.
1 !
1 !       verb_node -             command verb node - the head of the command execution
1 !                               tree.
1 !
1 !       message_vect -          the address of a longword to contain the address
1 !                               of a standard message argument vector
1 !
1 ! IMPLICIT INPUTS:
1 !
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !
1 !       A command execution tree is contructed for use by DBG$NEXECUTE_EXITLOOP
1 !
1 ! ROUTINE VALUE:
1 !
1 !       An unsigned integer lomgword completion code
1 !
1 ! COMPLETION CODES:
1 !
1 !       sts$k_success (1) -     success
1 !       sts$k_severe  (4) -     error in input
1 !
1 ! SIDE EFFECTS:
1 !
1 !       NONE
1 !
1 !--
1
2     BEGIN
2
2     MAP
2         verb_node : REF dbg$verb_node;
2
2     LOCAL
2         noun_node : REF dbg$noun_node;
2
2     BIND
2         dbg$cs_cr = UPLIT BYTE (1, dbg$k_car_return);
2
2     noun_node = dbg$get_tempmem (dbg$k_noun_node_size);
2
2     verb_node [dbg$l_verb_object_ptr] = .noun_node;
2
```

```
; 1639          1759  2     IF dbg$nmatch (.input_desc, dbg$cs_cr, 1)
; 1640          1760  2     THEN
; 1641          1761  2         noun_node [dbg$l_noun_value] = 1
; 1642          1762  2     ELSE
; 1643          1763  2         IF NOT dbg$nsave_decimal_integer (.input_desc,
; 1644          1764  2                                  noun_node [dbg$l_noun_value],
; 1645          1765  2                                  .message_vect)
; 1646          1766  2         THEN
; 1647          1767  2             RETURN sts$k_severe;
; 1648          1768  2
; 1649          1769  2     RETURN sts$k_success;
; 1650          1770  2
; 1651          1771  1     END;                         ! End of dbg$nparse_exitloop


                                                                           .PSECT  DBG$PLIT,NOWRT,  SHR,  PIC,0

                                                     0D  01  000ED P.AAT:  .BYTE   1, 13                                        ;

                                                                   DBG$CS_CR=          P.AAT


                                                                           .PSECT  DBG$CODE,NOWRT,  SHR,  PIC,0

                                                        0004 00000         .ENTRY  DBG$NPARSE_EXITLOOP, Save R2                 ; 1702
                                                      04  DD 00002         PUSHL   #4                                           ; 1755
                            00000000G  00             01  FB 00004         CALLS   #1, DBG$GET_TEMPMEM                          ;
                                       52             50  D0 0000B         MOVL    R0, NOUN_NODE                                ;
                                       50        08   AC  D0 0000E         MOVL    VERB_NODE, R0                                ; 1757
                                  08   A0             52  D0 00012         MOVL    NOUN_NODE, 8(R0)                             ;
                                                      01  DD 00016         PUSHL   #1                                           ; 1759
                                           00000000'  EF  9F 00018         PUSHAB  DBG$CS_CR                                    ;
                                                 04   AC  DD 0001E         PUSHL   INPUT_DESC                                   ;
                            00000000G  00             03  FB 00021         CALLS   #3, DBG$NMATCH                               ;
                                       05             50  E9 00028         BLBC    R0, 1$                                       ;
                                       62             01  D0 0002B         MOVL    #1, (NOUN_NODE)                              ; 1761
                                                      16  11 0002E         BRB     2$                                           ;
                                                 0C   AC  DD 00030 1$:     PUSHL   MESSAGE_VECT                                 ; 1765
                                                      52  DD 00033         PUSHL   NOUN_NODE                                    ; 1764
                                                 04   AC  DD 00035         PUSHL   INPUT_DESC                                   ;
                            00000000G  00             03  FB 00038         CALLS   #3, DBG$NSAVE_DECIMAL_INTEGER                ;
                                       04             50  E8 0003F         BLBS    R0, 2$                                       ;
                                       50             04  D0 00042         MOVL    #4, R0                                       ; 1767
                                                          04 00045         RET                                                  ;
                                       50             01  D0 00046 2$:     MOVL    #1, R0                                       ; 1769
                                                          04 00049         RET                                                  ; 1771

; Routine Size:  74 bytes,    Routine Base:  DBG$CODE + 0869
```

```
1 GLOBAL ROUTINE DBG$NEXECUTE_EXITLOOP (VERB_NODE, MESSAGE_VECT) =
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine is the execution network for the EXITLOOP command.
1 !       EXITLOOP N takes you out of N levels of loops. This is done
1 !       by removing the appropriate buffers from the linked list
1 !       of command buffers.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       verb_node       - The head of the command excution tree which in the case
1 !                         of EXITLOOP consists of this verb node, and a single
1 !                         noun node with the integer argument.
1 !
1 !       message_vect    - The address of a longword to contain the address of a
1 !                         message argument vector
1 !
1 ! IMPLICIT INPUTS:
1 !
1 !       dbg$gl_cishead - head of command input stream
1 !
1 ! IMPLICIT OUTPUTS:
1 !
1 !       The CIS data structure may be altered.
1 !
1 !       On failure, a message argument vector is returned.
1 !
1 ! ROUTINE VALUE:
1 !
1 !       An unsigned integer longword completion code.
1 !
1 ! COMPLETION CODES:
1 !
1 !       sts$k_severe (4) -      The command could not be executed.
1 !
1 !       sts$k_success (1) -     The command was executed.
1 !
1 ! SIDE EFFECTS:
1 !
1 !       This routine may force the exit of WHILE or REPEAT loops. Nodes may be
1 !       removed from the command input stream.
1 !
1 !--
1
2    BEGIN
2
2    MAP
2       verb_node : REF dbg$verb_node;
2
2    LOCAL
2       cis_ptr : REF cis$link,                 ! A pointer to a CIS buffer
2       count,                                  ! Local counter of number of cislinks
2                                               !       to be removed.
2       init_num_levels,                        ! Number of levels of loop to exit
2       num_levels,                             ! (copy of) Number of levels of loop to exit
```

```
; 1710          1829 2        noun_node : REF dbg$noun_node;  ! Local pointer to the noun node
; 1711          1830 2
; 1712          1831 2
; 1713          1832 2    ! Recover the argument to EXITLOOP.
; 1714          1833 2    !
; 1715          1834 2    noun_node = .verb_node [dbg$l_verb_object_ptr];
; 1716          1835 2    num_levels = .noun_node [dbg$l_noun_value];
; 1717          1836 2    init_num_levels = .num_levels;
; 1718          1837 2
; 1719          1838 2    ! Initialize cis_ptr and count.
; 1720          1839 2    !
; 1721          1840 2    cis_ptr = .dbg$gl_cishead;
; 1722          1841 2    count = 0;
; 1723          1842 2
; 1724          1843 2    ! Loop past NUM_LEVELS occurences of repeat or while loop buffers.
; 1725          1844 2    !
; 1726          1845 2    WHILE .num_levels GTR 0 DO
; 1727          1846 3        BEGIN
; 1728          1847 3
; 1729          1848 3        CASE .cis_ptr[cis$b_input_type] FROM dbg$k_cis_minimum TO
; 1730          1849 3                                             dbg$k_cis_maximum OF
; 1731          1850 3
; 1732          1851 3            SET
; 1733          1852 3
; 1734          1853 3            ! If the top level CIS indicates that we are not inside
; 1735          1854 3            ! of a loop, then the EXITLOOP command is an error.
; 1736          1855 3            !
; 1737          1856 3            [cis_dbg$input,
; 1738          1857 3             cis_rab,
; 1739          1858 3             cis_inpbuf,
; 1740          1859 3             cis_acbuf]:
; 1741          1860 4                        BEGIN
; 1742          1861 4
; 1743          1862 4                        ! If the number of loops encountered so far
; 1744          1863 4                        ! is zero, report that we
; 1745          1864 4                        ! are not in a loop.
; 1746          1865 4                        !
; 1747          1866 4                        IF .num_levels EQL .init_num_levels
; 1748          1867 4                        THEN
; 1749          1868 4                            .message_vect = dbg$nmake_arg_vect (
; 1750          1869 4                                dbg$_notinloop)
; 1751          1870 4
; 1752          1871 4                        ! If we have encountered loops, but we get here,
; 1753          1872 4                        ! then we were
; 1754          1873 4                        ! in a loop but the argument to EXITLOOP
; 1755          1874 4                        ! was too large.
; 1756          1875 4                        !
; 1757          1876 4                        ELSE
; 1758          1877 4                            .message_vect = dbg$nmake_arg_vect (
; 1759          1878 4                                dbg$_exitarg, 1, .init_num_levels);
; 1760          1879 4                        RETURN sts$k_severe;
; 1761          1880 3                        END;
; 1762          1881 3
; 1763          1882 3            ! If we are in an if clause, then we want to peel off that
; 1764          1883 3            ! CIS. We increment the count of the number of CIS buffers
; 1765          1884 3            ! to remove.
; 1766          1885 3            !
; 1767          1886 3                   [cis_if] :
; 1768          1887 4                           BEGIN
; 1769          1888 4                           count = .count + 1;
; 1770          1889 4                           cis_ptr = .cis_ptr [cis$a_next_link];
; 1771          1890 3                           END;
; 1772          1891 3
; 1773          1892 3                   ! If the top layer is a loop, increment the count of the
; 1774          1893 3                   ! the number of layets of buffers to remove. Decrement
; 1775          1894 3                   ! the count of the number of remaining loops.
; 1776          1895 3                   !
; 1777          1896 3                   [cis_repeat,
; 1778          1897 3                    cis_while,
; 1779          1898 3                    cis_for] :
; 1780          1899 4                           BEGIN
; 1781          1900 4                           count = .count + 1;
; 1782          1901 4                           num_levels = .num_levels - 1;
; 1783          1902 4                           cis_ptr = .cis_ptr [cis$a_next_link];
; 1784          1903 3                           END;
; 1785          1904 3
; 1786          1905 3                   ! Anything else is an error.
; 1787          1906 3                   !
; 1788          1907 3                   [INRANGE,
; 1789          1908 3                    OUTRANGE] :
; 1790          1909 4                           BEGIN
; 1791          1910 4                           $DBG_ERROR('DBGATSIGN\DBG$NEXECUTE_EXITLOOP');
; 1792          1911 3                           END;
; 1793          1912 3
; 1794          1913 3                   TES;
; 1795          1914 2                   END; ! While loop
; 1796          1915 2
; 1797          1916 2           ! Now, if we get to this point without an error, we strip off
; 1798          1917 2           ! the CIS buffers.
; 1799          1918 2           !
; 1800          1919 2           INCR i FROM 1 TO .count DO
; 1801          1920 2               IF NOT dbg$ncis_remove (TRUE, .message_vect)
; 1802          1921 2               THEN
; 1803          1922 2                   RETURN sts$k_severe;
; 1804          1923 2
; 1805          1924 2           RETURN sts$k_success;
; 1806          1925 2
; 1807          1926 1           END;                            ! End of dbg$nexecute_exitloop


                                                                .PSECT  DBG$PLIT,NOWRT,  SHR,  PIC,0

24  47  42  44  5C  4E  47  49  53  54  41  47  42  44  1F  000EF P.AAU:  .ASCII  <31>\DBGATSIGN\<92>\DBG$NEXECUTE_EXITL\    ;
    4C  54  49  58  45  5F  45  54  55  43  45  58  45  4E  000FE                                                          ;
                                                50  4F  4F  0010C         .ASCII  \OOP\                                  ;


                                                                .PSECT  DBG$CODE,NOWRT,  SHR,  PIC,0

                                         007C 00000          .ENTRY  DBG$NEXECUTE_EXITLOOP, Save R2,R3,R4,R5,R6  ; 1772
                          56 00000000G   00  9E 00002          MOVAB   DBG$NMAKE_ARG_VECT, R6                      ;
                          50        04   AC  D0 00009          MOVL    VERB_NODE, R0                               ; 1834
```

```
                                  50        08  A0  D0 0000D        MOVL    8(R0), NOUN_NODE                 ;
                                  53            60  D0 00011        MOVL    (NOUN_NODE), NUM_LEVELS          ; 1835
                                  55            53  D0 00014        MOVL    NUM_LEVELS, INIT_NUM_LEVELS      ; 1836
                                  52 00000000G  00  D0 00017        MOVL    DBG$GL_CISHEAD, CIS_PTR          ; 1840
                                                54  D4 0001E        CLRL    COUNT                            ; 1841
                                                53  D5 00020 1$:    TSTL    NUM_LEVELS                       ; 1845
                                                5F  15 00022        BLEQ    10$                              ;
                          08      00        02  A2  8F 00024        CASEB   2(CIS_PTR), #0, #8               ; 1848
     0029                 0029    0029        0029     00029 2$:    .WORD   4$-2$,-                          ;
     0050                 004C    0050        0050     00031                4$-2$,-                          ;
                                              0012     00039                4$-2$,-                          ;
                                                                            4$-2$,-                          ;
                                                                            8$-2$,-                          ;
                                                                            8$-2$,-                          ;
                                                                            7$-2$,-                          ;
                                                                            8$-2$,-                          ;
                                                                            3$-2$                            ;
                                     00000000'  EF  9F 0003B 3$:    PUSHAB  P.AAU                            ; 1910
                                                01  DD 00041        PUSHL   #1                               ;
                                     00028362   8F  DD 00043        PUSHL   #164706                          ;
                        00000000G 00            03  FB 00049        CALLS   #3, LIB$SIGNAL                   ;
                                                CE  11 00050        BRB     1$                               ; 1848
                                  55            53  D1 00052 4$:    CMPL    NUM_LEVELS, INIT_NUM_LEVELS      ; 1866
                                                0B  12 00055        BNEQ    5$                               ;
                                     00028E40   8F  DD 00057        PUSHL   #167488                          ; 1868
                                  66            01  FB 0005D        CALLS   #1, DBG$NMAKE_ARG_VECT           ;
                                                0D  11 00060        BRB     6$                               ;
                                                55  DD 00062 5$:    PUSHL   INIT_NUM_LEVELS                  ; 1878
                                                01  DD 00064        PUSHL   #1                               ; 1877
                                     00028E48   8F  DD 00066        PUSHL   #167496                          ;
                                  66            03  FB 0006C        CALLS   #3, DBG$NMAKE_ARG_VECT           ;
                              08  BC            50  D0 0006F 6$:    MOVL    R0, @MESSAGE_VECT                ;
                                                21  11 00073        BRB     12$                              ; 1879
                                                54  D6 00075 7$:    INCL    COUNT                            ; 1888
                                                04  11 00077        BRB     9$                               ; 1889
                                                54  D6 00079 8$:    INCL    COUNT                            ; 1900
                                                53  D7 0007B        DECL    NUM_LEVELS                       ; 1901
                                  52        08  A2  D0 0007D 9$:    MOVL    8(CIS_PTR), CIS_PTR              ; 1902
                                                9D  11 00081        BRB     1$                               ; 1845
                                                53  D4 00083 10$:   CLRL    I                                ; 1920
                                                13  11 00085        BRB     13$                              ;
                                            08  AC  DD 00087 11$:   PUSHL   MESSAGE_VECT                     ;
                                                01  DD 0008A        PUSHL   #1                               ;
                        00000000G 00            02  FB 0008C        CALLS   #2, DBG$NCIS_REMOVE              ;
                                  04            50  E8 00093        BLBS    R0, 13$                          ;
                                  50            04  D0 00096 12$:   MOVL    #4, R0                           ; 1922
                                                    04 00099        RET                                      ;
                       E9         53            54  F3 0009A 13$:   AOBLEQ  COUNT, I, 11$                    ; 1920
                                  50            01  D0 0009E        MOVL    #1, R0                           ; 1924
                                                    04 000A1        RET                                      ; 1926

; Routine Size:  162 bytes,    Routine Base:  DBG$CODE + 08B3
```

```
1 GLOBAL ROUTINE DBG$NPARSE_DECLARE (INPUT_DESC, VERB_NODE, MESSAGE_VECT) =
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       Parses the DECLARE command. A command execution tree is constructed.
1 !       This tree contains a noun node for each name that is declared.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       input_desc -                    The present command line input descriptor
1 !
1 !       verb_node  -                    The already existing command verb node
1 !
1 !       message_vect -                  The address of a longword to contain the
1 !                                       address of a message argument vector
1 !
1 ! IMPLICIT INPUTS:
1 !
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !
1 !       On success, the appropriate command execution tree is constructed.
1 !
1 !       On failure, a message argument vector is constructed
1 !
1 ! ROUTINE VALUE:
1 !
1 !       An unsigned integer longword completion code
1 !
1 ! COMPLETION CODES:
1 !
1 !       sts$k_severe (4) -              Error in parsing
1 !
1 !       sts$k_success (1) -             Successful parse
1 !
1 ! SIDE EFFECTS:
1 !
1 !       None
1 !
1 !--
1
2     BEGIN
2
2     MAP
2       INPUT_DESC: REF dbg$stg_desc,
2       VERB_NODE : REF dbg$verb_node;
2
2     BIND
2       dbg$cs_colon            = UPLIT BYTE (1, dbg$k_colon),
2       dbg$cs_comma            = UPLIT BYTE (1, dbg$k_comma),
2       dbg$cs_cr               = UPLIT BYTE (1, dbg$k_car_return),
2       dbg$cs_address          = UPLIT BYTE (7, 'ADDRESS'),
2       dbg$cs_command          = UPLIT BYTE (7, 'COMMAND'),
2       dbg$cs_procedure        = UPLIT BYTE (9, 'PROCEDURE'),
2       dbg$cs_string           = UPLIT BYTE (6, 'STRING'),
2       dbg$cs_value            = UPLIT BYTE (5, 'VALUE');
```

```
2
2   LOCAL
2       first_time: BYTE,                   ! Flag which is true the first time
2                                           !     around a loop.
2       link,                               ! A link in the command execution tree.
2       noun_node: REF dbg$noun_node;       ! Pointer to a noun node.
2
2   ! Set the first_time flag to true for the first time around the loop.
2   !
2   first_time = TRUE;
2
2   ! Loop through the list of declarations.
2   !
2   WHILE TRUE DO
3       BEGIN
3
3       ! Allocate a noun node and link it in.
3       !
3       IF .first_time
3       THEN
4           BEGIN
4           link = verb_node [dbg$l_verb_object_ptr];
4           first_time = FALSE;
4           END
3       ELSE
3           link = noun_node [dbg$l_noun_link];
3       noun_node = dbg$get_tempmem (dbg$k_noun_node_size);
3       .link = .noun_node;
3
3       ! Read the name being declared.
3       !
3       IF NOT dbg$nread_name (.input_desc, noun_node [dbg$l_noun_value],
3                              .message_vect)
3       THEN
3           RETURN sts$k_severe;
3
3       ! Look for a colon
3       !
3       IF dbg$nmatch (.input_desc, dbg$cs_colon, 1)
3       THEN
3
3           ! Look for a keyword following the colon.
3           !
3           SELECTONE TRUE OF
3               SET
3
3               [dbg$nmatch (.input_desc, dbg$cs_address, 1)] :
3                   noun_node [dbg$l_noun_value2] = define_address;
3
3               [dbg$nmatch (.input_desc, dbg$cs_command, 1)] :
3                   noun_node [dbg$l_noun_value2] = define_command;
3
3           !   [dbg$nmatch (.input_desc, dbg$cs_procedure, 1)] :
3           !       noun_node [dbg$l_noun_value2] = define_procedure;
3
3           !   [dbg$nmatch (.input_desc, dbg$cs_string, 1)] :
3           !       noun_node [dbg$l_noun_value2] = define_string;
```

```
; 1923          2041  3
; 1924          2042  3                     [dbg$nmatch (.input_desc, dbg$cs_value, 1)] :
; 1925          2043  3                         noun_node [dbg$l_noun_value2] = define_value;
; 1926          2044  3
; 1927          2045  3                     ! Anything else following the colon is an error.
; 1928          2046  3                     !
; 1929          2047  3                     [OTHERWISE] :
; 1930          2048  3                         report_error;
; 1931          2049  3
; 1932          2050  3                     TES
; 1933          2051  3
; 1934          2052  3             ! The default type is address.
; 1935          2053  3             !
; 1936          2054  3             ELSE
; 1937          2055  3                 noun_node [dbg$l_noun_value2] = define_address;
; 1938          2056  3
; 1939          2057  3             ! Look for the comma which separates declarations.
; 1940          2058  3             !
; 1941          2059  3             IF NOT dbg$nmatch (.input_desc, dbg$cs_comma, 1)
; 1942          2060  3             THEN
; 1943          2061  3
; 1944          2062  3                 ! If end-of-line, then just exit the loop.
; 1945          2063  3                 !
; 1946          2064  3                 IF dbg$nmatch (.input_desc, dbg$cs_cr, 1)
; 1947          2065  3                 THEN
; 1948          2066  3                     EXITLOOP
; 1949          2067  3
; 1950          2068  3                 ! Anything other than end-of-line or comma is a syntax error.
; 1951          2069  3                 !
; 1952          2070  3                 ELSE
; 1953          2071  3                     report_error;
; 1954          2072  3
; 1955          2073  2             END; ! While loop
; 1956          2074  2
; 1957          2075  2         ! If we get here, the parse was successful.
; 1958          2076  2         !
; 1959          2077  2         RETURN sts$k_success;
; 1960          2078  2
; 1961          2079  1         END;
; INFO#250                  L1:2009
; Referenced LOCAL symbol NOUN_NODE is probably not initialized



                                                                  .PSECT  DBG$PLIT,NOWRT,  SHR,  PIC,0

                                            3A  01  0010F P.AAV:  .BYTE    1, 58
                                            2C  01  00111 P.AAW:  .BYTE    1, 44
                                            0D  01  00113 P.AAX:  .BYTE    1, 13
                                                07  00115 P.AAY:  .BYTE    7
                              53  53  45  52  44  44  41  00116         .ASCII   \ADDRESS\
                                                07  0011D P.AAZ:  .BYTE    7
                              44  4E  41  4D  4D  4F  43  0011E         .ASCII   \COMMAND\
                                                09  00125 P.ABA:  .BYTE    9
                      45  52  55  44  45  43  4F  52  50  00126         .ASCII   \PROCEDURE\
                                                06  0012F P.ABB:  .BYTE    6
                                  47  4E  49  52  54  53  00130         .ASCII   \STRING\
                                05  00136 P.ABC:  .BYTE   5                                             ;
               45  55  4C   41  56  00137         .ASCII  \VALUE\                                       ;

                                          DBG$CS_COLON=        P.AAV
                                          DBG$CS_COMMA=        P.AAW
                                          DBG$CS_CR=           P.AAX
                                          DBG$CS_ADDRESS=      P.AAY
                                          DBG$CS_COMMAND=      P.AAZ
                                          DBG$CS_PROCEDURE=    P.ABA
                                          DBG$CS_STRING=       P.ABB
                                          DBG$CS_VALUE=        P.ABC

                                                  .PSECT  DBG$CODE,NOWRT,  SHR,  PIC,0

                               00FC 00000         .ENTRY  DBG$NPARSE_DECLARE, Save R2,R3,R4,R5,R6,R7    ; 1927
              57 00000000G  00  9E  00002         MOVAB   DBG$NMATCH, R7                                ;
              56 00000000'  EF  9E  00009         MOVAB   DBG$CS_CR, R6                                 ;
              55            01  90  00010         MOVB    #1, FIRST_TIME                                ; 1993
              53        04  AC  D0  00013         MOVL    INPUT_DESC, R3                                ; 2015
              09            55  E9  00017 1$:     BLBC    FIRST_TIME, 2$                                ; 2002
54       08   AC            08  C1  0001A         ADDL3   #8, VERB_NODE, LINK                           ; 2005
                            55  94  0001F         CLRB    FIRST_TIME                                    ; 2006
                            04  11  00021         BRB     3$                                            ; 2002
              54        08  A2  9E  00023 2$:     MOVAB   8(R2), LINK                                   ; 2009
                            04  DD  00027 3$:     PUSHL   #4                                            ; 2010
   00000000G  00            01  FB  00029         CALLS   #1, DBG$GET_TEMPMEM                           ;
              52            50  D0  00030         MOVL    R0, NOUN_NODE                                 ;
              64            52  D0  00033         MOVL    NOUN_NODE, (LINK)                             ; 2011
                        0C  AC  DD  00036         PUSHL   MESSAGE_VECT                                  ; 2016
                            52  DD  00039         PUSHL   NOUN_NODE                                     ; 2015
                            53  DD  0003B         PUSHL   R3                                            ;
   00000000G  00            03  FB  0003D         CALLS   #3, DBG$NREAD_NAME                            ;
              03            50  E8  00044         BLBS    R0, 4$                                        ;
                           0097 31  00047         BRW     12$                                           ;
                            01  DD  0004A 4$:     PUSHL   #1                                            ; 2022
                        FC  A6  9F  0004C         PUSHAB  DBG$CS_COLON                                  ;
                            53  DD  0004F         PUSHL   R3                                            ;
              67            03  FB  00051         CALLS   #3, DBG$NMATCH                                ;
              39            50  E9  00054         BLBC    R0, 6$                                        ;
                            01  DD  00057         PUSHL   #1                                            ; 2030
                        02  A6  9F  00059         PUSHAB  DBG$CS_ADDRESS                                ;
                            53  DD  0005C         PUSHL   R3                                            ;
              67            03  FB  0005E         CALLS   #3, DBG$NMATCH                                ;
              01            50  D1  00061         CMPL    R0, #1                                        ;
                            2A  13  00064         BEQL    6$                                            ;
                            01  DD  00066         PUSHL   #1                                            ; 2033
                        0A  A6  9F  00068         PUSHAB  DBG$CS_COMMAND                                ;
                            53  DD  0006B         PUSHL   R3                                            ;
              67            03  FB  0006D         CALLS   #3, DBG$NMATCH                                ;
              01            50  D1  00070         CMPL    R0, #1                                        ;
                            06  12  00073         BNEQ    5$                                            ;
         0C   A2            02  D0  00075         MOVL    #2, 12(NOUN_NODE)                             ; 2034
                            19  11  00079         BRB     7$                                            ;
                            01  DD  0007B 5$:     PUSHL   #1                                            ; 2042
                        23  A6  9F  0007D         PUSHAB  DBG$CS_VALUE                                  ;
                            53  DD  00080         PUSHL   R3                                            ;
```

```
                    67             03  FB 00082          CALLS   #3, DBG$NMATCH                         ;
                    01             50  D1 00085          CMPL    R0, #1                                 ;
                                   26  12 00088          BNEQ    9$                                     ;
            0C      A2             05  D0 0008A          MOVL    #5, 12(NOUN_NODE)                      ; 2043
                                   04  11 0008E          BRB     7$                                     ;
            0C      A2             01  D0 00090 6$:      MOVL    #1, 12(NOUN_NODE)                      ; 2055
                                   01  DD 00094 7$:      PUSHL   #1                                     ; 2059
                          FE       A6  9F 00096          PUSHAB  DBG$CS_COMMA                           ;
                                   53  DD 00099          PUSHL   R3                                     ;
                    67             03  FB 0009B          CALLS   #3, DBG$NMATCH                         ;
                    03             50  E9 0009E          BLBC    R0, 8$                                 ;
                                 FF73  31 000A1          BRW     1$                                     ;
                                   01  DD 000A4 8$:      PUSHL   #1                                     ; 2064
                        0048       8F  BB 000A6          PUSHR   #^M<R3,R6>                             ;
                    67             03  FB 000AA          CALLS   #3, DBG$NMATCH                         ;
                    35             50  E8 000AD          BLBS    R0, 13$                                ;
                                   01  DD 000B0 9$:      PUSHL   #1                                     ; 2070
                        0048       8F  BB 000B2          PUSHR   #^M<R3,R6>                             ;
                    67             03  FB 000B6          CALLS   #3, DBG$NMATCH                         ;
                    0F             50  E9 000B9          BLBC    R0, 10$                                ;
                    000280D0       8F  DD 000BC          PUSHL   #164048                                ;
        00000000G   00             01  FB 000C2          CALLS   #1, DBG$NMAKE_ARG_VECT                 ;
                                   12  11 000C9          BRB     11$                                    ;
                                   53  DD 000CB 10$:     PUSHL   R3                                     ;
        00000000G   00             01  FB 000CD          CALLS   #1, DBG$NNEXT_WORD                     ;
                                   50  DD 000D4          PUSHL   R0                                     ;
        00000000G   00             01  FB 000D6          CALLS   #1, DBG$NSYNTAX_ERROR                  ;
            0C      BC             50  D0 000DD 11$:     MOVL    R0, @MESSAGE_VECT                      ;
                    50             04  D0 000E1 12$:     MOVL    #4, R0                                 ;
                                       04 000E4          RET                                            ;
                    50             01  D0 000E5 13$:     MOVL    #1, R0                                 ; 2077
                                       04 000E8          RET                                            ; 2079

; Routine Size:  233 bytes,    Routine Base:  DBG$CODE + 0955
```

```
1 GLOBAL ROUTINE DBG$NEXECUTE_DECLARE (VERB_NODE, MESSAGE_VECT) =
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine executes the DECLARE command. This is done by
1 !       retrieving the strings that were passed in at @, and binding
1 !       them to the names being declared.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       verb_node -                     The command verb node which is the start
1 !                                       of the command execution tree
1 !
1 !       message_vect -                  The address of a longword to contain the
1 !                                       address of a message argument vector
1 !
1 ! IMPLICIT INPUTS:
1 !
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !
1 !       The local DEFINE list for the current procedure is modified.
1 !       On failure, a message argument vector is returned
1 !
1 ! ROUTINE VALUE:
1 !
1 !       An unsigned integer longword completion code
1 !
1 ! COMPLETION CODES:
1 !
1 !       sts$k_success (1) -     Indicates the file was created and connected
1 !
1 !       sts$k_severe (4) -      Failure, file not created. Message argument vector returned
1 !
1 ! SIDE EFFECTS:
1 !
1 !       None.
1 !--
1
2     BEGIN
2
2     MAP
2       VERB_NODE       : REF dbg$verb_node;
2
2     BIND
2       dbg$cs_cr                 = UPLIT BYTE (1, dbg$k_car_return),
2       dbg$cs_left_paren         = UPLIT BYTE (1, dbg$k_left_parenthesis);
2
2     LOCAL
2       global_flag,                    ! Flag that is returned from dbg$def_sym_find
2       input_desc: dbg$stg_desc,       ! String descriptor for use with
2                                       !    AEI and EI.
2       len,                            ! Length of string
2       new_string: REF VECTOR[,BYTE],  ! Pointer to char string
2       noun_node: REF dbg$noun_node,   ! Points to a noun node
```

```
2          param_name,                     ! Points to a string with "%Pi"
2          replaced_flag,                  ! Flag returned from dbg$def_sym_add
2          returned_kind,                  ! Kind returned from dbg$def_sym_find
2          returned_value:REF VECTOR[,BYTE],! Value returned from dbg$def_sym_find
2          symid_list,                     ! Points to a symid list
2          value;                          ! Points to the "value" of the symbol
2
2      ! Obtain the first noun node.
2      !
2      noun_node = .verb_node [dbg$l_verb_object_ptr];
2
2      ! Loop through the list of declared names.
2      !
2      WHILE .noun_node NEQ 0 DO
3          BEGIN
3
3          ! Increment the count of the number of names processed.
3          !
3          dbg$gl_param_count [.dbg$gl_pr_nest_level] =
3                  1 + .dbg$gl_param_count [.dbg$gl_pr_nest_level];
3
3          ! Obtain the name of the corresponding parameter.
3          !
3          IF NOT dbg$construct_param_name (
3                          .dbg$gl_param_count [.dbg$gl_pr_nest_level],
3                          param_name,
3                          FALSE,
3                          .message_vect)
3          THEN
3              RETURN sts$k_severe;
3
3          ! Look up the corresponding value.
3          !
3          IF NOT dbg$def_sym_find (.param_name, returned_kind, returned_value,
3                  global_flag, .message_vect)
3          THEN
4              BEGIN
4
4              ! A parameter definition was not found. This most likely
4              ! indicates more declarations than there were parameters.
4              ! Report an error.
4              !
4              .message_vect = dbg$nmake_arg_vect (dbg$_declarerr, 1,
4                                      .noun_node [dbg$l_noun_value]);
4              RETURN sts$k_severe;
3              END;
3
3
3          ! Check that the definition that was found was of type parameter.
3          ! If not, report an internal DEBUG error.
3          !
3          IF .returned_kind NEQ define_parameter
3          THEN
3              $DBG_ERROR('DBGNDECL\NEXECUTE_DECLARE 10');
3
3
3          ! Check that the definition was local and not global.  If it was global,
; 2077          2194  3                 ! we report an internal error.
; 2078          2195  3                 !
; 2079          2196  3                 IF .global_flag
; 2080          2197  3                 THEN
; 2081          2198  3                     $DBG_ERROR('DBGNDECL\NEXECUTE_DECLARE 20');
; 2082          2199  3
; 2083          2200  3
; 2084          2201  3                 ! Convert the definition to the appropriate type.
; 2085          2202  3                 ! First turn the string into an input descriptor.
; 2086          2203  3                 ! Note - we need to append a carriage return to the end
; 2087          2204  3                 ! of the string first.
; 2088          2205  3                 !
; 2089          2206  3                 len = .returned_value[0];
; 2090          2207  3                 new_string = dbg$get_tempmem (1+.len/4);
; 2091          2208  3                 ch$move (.len,returned_value[1],.new_string);
; 2092          2209  3                 new_string[.len] = dbg$k_car_return;
; 2093          2210  3                 input_desc [dsc$w_length] = .len+1;
; 2094          2211  3                 input_desc [dsc$a_pointer] = .new_string;
; 2095          2212  3
; 2096          2213  3
; 2097          2214  3                 ! Case on the kind of symbol.
; 2098          2215  3                 !
; 2099          2216  3                 CASE .noun_node[dbg$l_noun_value2]
; 2100          2217  3                     FROM define_lowest TO define_highest OF
; 2101          2218  3                     SET
; 2102          2219  3
; 2103          2220  3                     [define_address] :
; 2104          2221  4                         BEGIN
; 2105          2222  4                         LOCAL
; 2106          2223  4                             primptr;
; 2107          2224  4
; 2108          2225  4                         ! Call the address expression interpreter.
; 2109          2226  4                         !
; 2110          2227  4                         IF NOT DBG$NPARSE_ADDRESS (INPUT_DESC, PRIMPTR,
; 2111          2228  4                                 .DBG$GB_RADIX[DBG$B_RADIX_INPUT],
; 2112          2229  4                                 TOKEN$K_TERM_NONE, .MESSAGE_VECT)
; 2113          2230  4                         THEN
; 2114          2231  4                             RETURN sts$k_severe;
; 2115          2232  4
; 2116          2233  4                         IF NOT dbg$nget_symid (.primptr, symid_list, .message_vect)
; 2117          2234  4                         THEN
; 2118          2235  4                             RETURN sts$k_severe;
; 2119          2236  4                         IF NOT dbg$ncopy_desc (.primptr, value, .message_vect)
; 2120          2237  4                         THEN
; 2121          2238  4                             RETURN sts$k_severe;
; 2122          2239  4                         dbg$sta_lock_symid (.symid_list);
; 2123          2240  3                         END;
; 2124          2241  3
; 2125          2242  3                     [define_command, define_string] :
; 2126          2243  4                         BEGIN
; 2127          2244  4
; 2128          2245  4                         MAP
; 2129          2246  4                             value: REF VECTOR[,BYTE];
; 2130          2247  4
; 2131          2248  4                         ! In these cases we already have the definition in
; 2132          2249  4                         ! the appropriate form (a counted string). We need to
; 2133          2250  4                         ! allocate space for a copy and then copy the counted
```

```
4                    ! string.
4                    !
4                    value = dbg$get_memory (((.returned_value[0]+1)+3)/4);
4                    value[0] = .returned_value[0];
4                    ch$move (.returned_value[0], returned_value[1], value[1]);
3                    END;
3
3            [define_procedure] :
4                    BEGIN
4
4                    ! For this case we want to pick up a sequence of DEBUG
4                    ! commands inside of parenthesis.
4                    ! First we eat the left paren.
4                    !
4                    IF NOT dbg$nmatch (input_desc, dbg$cs_left_paren, 1)
4                    THEN
4                        report_error;
4
4                    ! Call the routine which picks up a sequence of
4                    ! DEBUG commands.
4                    !
4                    IF NOT dbg$nsave_break_buffer (input_desc,
4                            value,
4                            .message_vect)
4                    THEN
4                        RETURN sts$k_severe;
4
3                    END;
3
3            [define_value] :
4                    BEGIN
4                    LOCAL
4                        temp_desc;  ! Variable to hold a pointer to a value descriptor
4
4                    ! For this case we just call the expression interpreter
4                    ! to parse a language expression.
4                    !
4                    IF NOT DBG$NPARSE_EXPRESSION (INPUT_DESC,
4                            .DBG$GB_RADIX[DBG$B_RADIX_INPUT],
4                            TEMP_DESC, TOKEN$K_TERM_NONE, .MESSAGE_VECT)
4                    THEN
4                        RETURN sts$k_severe;
4
4                    ! Copy the descriptor into permanent memory.
4                    !
4                    IF NOT dbg$nget_symid (.temp_desc, symid_list, .message_vect)
4                    THEN
4                        RETURN sts$k_severe;
4                    IF NOT dbg$ncopy_desc (.temp_desc,
4                        value, .message_vect)
4                    THEN
4                        RETURN sts$k_severe;
4                    dbg$sta_lock_symid (.symid_list);
4
3                    END;
3
3
```

```
; 2191          2308  3                 ! Anything else is an error.
; 2192          2309  3                 !
; 2193          2310  3                 [INRANGE,OUTRANGE] :
; 2194          2311  3                     $DBG_ERROR('DBGNDECL\NEXECUTE_DECLARE 30');
; 2195          2312  3
; 2196          2313  3                 TES;
; 2197          2314  3
; 2198          2315  3
; 2199          2316  3             ! Add the appropriate symbol definition.
; 2200          2317  3             !
; 2201          2318  3             IF NOT dbg$def_sym_add (.noun_node [dbg$l_noun_value],
; 2202          2319  3                     .noun_node [dbg$l_noun_value2], .value,
; 2203          2320  3                     FALSE, replaced_flag, .message_vect)
; 2204          2321  3             THEN
; 2205          2322  3                 RETURN sts$k_severe;
; 2206          2323  3
; 2207          2324  3             ! Set up for the next time around the loop.
; 2208          2325  3             !
; 2209          2326  3             noun_node = .noun_node [dbg$l_noun_link];
; 2210          2327  2             END; ! while loop
; 2211          2328  2
; 2212          2329  2         ! Return success.
; 2213          2330  2         !
; 2214          2331  2         RETURN sts$k_success;
; 2215          2332  2
; 2216          2333  1         END;        ! End of dbg$nexecute_declare



                                                                        .PSECT  DBG$PLIT,NOWRT,  SHR,  PIC,0

                                                  0D  01  0013C P.ABD:  .BYTE   1, 13                                        ;
                                                  28  01  0013E P.ABE:  .BYTE   1, 40                                        ;
43  45  58  45  4E  5C  4C  43  45  44  4E  47  42  44  1C  00140 P.ABF:  .ASCII  <28>\DBGNDECL\<92>\NEXECUTE_DECLARE 10\    ;
    30  31  20  45  52  41  4C  43  45  44  5F  45  54  55  0014F                                                             ;
43  45  58  45  4E  5C  4C  43  45  44  4E  47  42  44  1C  0015D P.ABG:  .ASCII  <28>\DBGNDECL\<92>\NEXECUTE_DECLARE 20\    ;
    30  32  20  45  52  41  4C  43  45  44  5F  45  54  55  0016C                                                             ;
43  45  58  45  4E  5C  4C  43  45  44  4E  47  42  44  1C  0017A P.ABH:  .ASCII  <28>\DBGNDECL\<92>\NEXECUTE_DECLARE 30\    ;
    30  33  20  45  52  41  4C  43  45  44  5F  45  54  55  00189                                                             ;

                                                                DBG$CS_CR=              P.ABD
                                                                DBG$CS_LEFT_PAREN=      P.ABE


                                                                        .PSECT  DBG$CODE,NOWRT,  SHR,  PIC,0

                                                      0FFC 00000        .ENTRY  DBG$NEXECUTE_DECLARE, Save R2,R3,R4,R5,R6,-  ; 2080
                                                                                R7,R8,R9,R10,R11                             ;
                                 5B 00000000'  EF  9E  00002            MOVAB   P.ABF, R11                                   ;
                                 5E            30  C2  00009            SUBL2   #48, SP                                      ;
                                 50       04   AC  D0  0000C            MOVL    VERB_NODE, R0                                ; 2146
                                 58       08   A0  D0  00010            MOVL    8(R0), NOUN_NODE                             ;
                                 59       08   AC  D0  00014            MOVL    MESSAGE_VECT, R9                             ; 2164
                                               58  D5  00018 1$:        TSTL    NOUN_NODE                                    ; 2150
                                               03  12  0001A            BNEQ    2$                                           ;
                                             01FA  31  0001C            BRW     24$                                          ;
                                 50 00000000'  EF  D0  0001F 2$:        MOVL    DBG$GL_PR_NEST_LEVEL, R0                     ; 2155
```

```
                                           00000000'EF40 D6 00026         INCL    DBG$GL_PARAM_COUNT[R0]        ; 2156
                                                      59 DD 0002D         PUSHL   R9                            ; 2164
                                                      7E D4 0002F         CLRL    -(SP)                         ; 2160
                                                 08   AE 9F 00031         PUSHAB  PARAM_NAME                    ;
                                           00000000'EF40 DD 00034         PUSHL   DBG$GL_PARAM_COUNT[R0]        ; 2161
                                 FAC0  CF             04 FB 0003B         CALLS   #4, DBG$CONSTRUCT_PARAM_NAME  ;
                                       2C             50 E9 00040         BLBC    R0, 4$                        ;
                                                      59 DD 00043         PUSHL   R9                            ; 2171
                                                 08   AE 9F 00045         PUSHAB  GLOBAL_FLAG                   ; 2170
                                                 10   AE 9F 00048         PUSHAB  RETURNED_VALUE                ;
                                                 18   AE 9F 0004B         PUSHAB  RETURNED_KIND                 ;
                                                 10   AE DD 0004E         PUSHL   PARAM_NAME                    ;
                            00000000G  00             05 FB 00051         CALLS   #5, DBG$DEF_SYM_FIND          ;
                                       17             50 E8 00058         BLBS    R0, 5$                        ;
                                                      68 DD 0005B         PUSHL   (NOUN_NODE)                   ; 2180
                                                      01 DD 0005D         PUSHL   #1                            ; 2179
                                           00028E60   8F DD 0005F         PUSHL   #167520                       ;
                            00000000G  00             03 FB 00065         CALLS   #3, DBG$NMAKE_ARG_VECT        ;
                                       69             50 D0 0006C 3$:     MOVL    R0, (R9)                      ;
                                                    019C 31 0006F 4$:     BRW     22$                           ; 2181
                                       06        0C   AE D1 00072 5$:     CMPL    RETURNED_KIND, #6             ; 2188
                                                      11 13 00076         BEQL    6$                            ;
                                                      5B DD 00078         PUSHL   R11                           ; 2190
                                                      01 DD 0007A         PUSHL   #1                            ;
                                           00028362   8F DD 0007C         PUSHL   #164706                       ;
                            00000000G  00             03 FB 00082         CALLS   #3, LIB$SIGNAL                ;
                                       12        04   AE E9 00089 6$:     BLBC    GLOBAL_FLAG, 7$               ; 2196
                                                 1D   AB 9F 0008D         PUSHAB  P.ABG                         ; 2198
                                                      01 DD 00090         PUSHL   #1                            ;
                                           00028362   8F DD 00092         PUSHL   #164706                       ;
                            00000000G  00             03 FB 00098         CALLS   #3, LIB$SIGNAL                ;
                                       57        08   AE D0 0009F 7$:     MOVL    RETURNED_VALUE, R7            ; 2206
                                       56             67 9A 000A3         MOVZBL  (R7), LEN                     ;
                         50            56             04 C7 000A6         DIVL3   #4, LEN, R0                   ; 2207
                                                 01   A0 9F 000AA         PUSHAB  1(R0)                         ;
                            00000000G  00             01 FB 000AD         CALLS   #1, DBG$GET_TEMPMEM           ;
                                       5A             50 D0 000B4         MOVL    R0, NEW_STRING                ;
                         6A        01  A7             56 28 000B7         MOVC3   LEN, 1(R7), (NEW_STRING)      ; 2208
                                     664A             0D 90 000BC         MOVB    #13, (LEN)[NEW_STRING]        ; 2209
                    24   AE            56             01 A1 000C0         ADDW3   #1, LEN, INPUT_DESC           ; 2210
                                   28  AE             5A D0 000C5         MOVL    NEW_STRING, INPUT_DESC+4      ; 2211
                         06            01        0C   A8 CF 000C9         CASEL   12(NOUN_NODE), #1, #6         ; 2216
          005D         0081          005D           0022    000CE 8$:     .WORD   10$-8$,-                      ;
                       000E          000E           00DE    000D6                 13$-8$,-                      ;
                                                                                  15$-8$,-                      ;
                                                                                  13$-8$,-                      ;
                                                                                  19$-8$,-                      ;
                                                                                  9$-8$,-                       ;
                                                                                  9$-8$                         ;
                                                 3A   AB 9F 000DC 9$:     PUSHAB  P.ABH                         ; 2311
                                                      01 DD 000DF         PUSHL   #1                            ;
                                           00028362   8F DD 000E1         PUSHL   #164706                       ;
                            00000000G  00             03 FB 000E7         CALLS   #3, LIB$SIGNAL                ;
                                                      5C 11 000EE         BRB     14$                           ;
                                                      59 DD 000F0 10$:    PUSHL   R9                            ; 2229
                                                      7E D4 000F2         CLRL    -(SP)                         ; 2227
                                       7E 00000000G   00 9A 000F4         MOVZBL  DBG$GB_RADIX, -(SP)           ; 2228
                            1C    AE 9F 000FB          PUSHAB  PRIMPTR                         : 2227
                            34    AE 9F 000FE          PUSHAB  INPUT_DESC                      :
        00000000G   00            05 FB 00101          CALLS   #5, DBG$NPARSE_ADDRESS          :
                    0F            50 E9 00108          BLBC    R0, 11$                         :
                                  59 DD 0010B          PUSHL   R9                              : 2233
                            1C    AE 9F 0010D          PUSHAB  SYMID_LIST                      :
                            18    AE DD 00110          PUSHL   PRIMPTR                         :
        00000000G   00            03 FB 00113          CALLS   #3, DBG$NGET_SYMID              :
                    03            50 E8 0011A 11$:     BLBS    R0, 12$                         :
                                00EE 31 0011D          BRW     22$                             :
                                  59 DD 00120 12$:     PUSHL   R9                              : 2236
                            20    AE 9F 00122          PUSHAB  VALUE                           :
                            18    AE DD 00125          PUSHL   PRIMPTR                         :
                                00B6 31 00128          BRW     20$                             :
                    50            67 9A 0012B 13$:     MOVZBL  (R7), R0                        : 2253
                    50            04 C0 0012E          ADDL2   #4, R0                          :
     7E             50            04 C7 00131          DIVL3   #4, R0, -(SP)                   :
        00000000G   00            01 FB 00135          CALLS   #1, DBG$GET_MEMORY              :
                 1C AE            50 D0 0013C          MOVL    R0, VALUE                       :
                    60            67 90 00140          MOVB    (R7), (R0)                      : 2254
                    51            67 9A 00143          MOVZBL  (R7), R1                        : 2255
01   A0       01    A7            51 28 00146          MOVC3   R1, 1(R7), 1(R0)                :
                                00A6 31 0014C 14$:     BRW     21$                             : 2216
                                  01 DD 0014F 15$:     PUSHL   #1                              : 2265
                            FE    AB 9F 00151          PUSHAB  DBG$CS_LEFT_PAREN               :
                            2C    AE 9F 00154          PUSHAB  INPUT_DESC                      :
        00000000G   00            03 FB 00157          CALLS   #3, DBG$NMATCH                  :
                    37            50 E8 0015E          BLBS    R0, 18$                         :
                                  01 DD 00161          PUSHL   #1                              : 2266
                            FC    AB 9F 00163          PUSHAB  DBG$CS_CR                       :
                            2C    AE DD 00166          PUSHL   INPUT_DESC                      :
        00000000G   00            03 FB 00169          CALLS   #3, DBG$NMATCH                  :
                    0F            50 E9 00170          BLBC    R0, 16$                         :
                      000280D0    8F DD 00173          PUSHL   #164048                         :
        00000000G   00            01 FB 00179          CALLS   #1, DBG$NMAKE_ARG_VECT          :
                                  13 11 00180          BRB     17$                             :
                            24    AE DD 00182 16$:     PUSHL   INPUT_DESC                      :
        00000000G   00            01 FB 00185          CALLS   #1, DBG$NNEXT_WORD              :
                                  50 DD 0018C          PUSHL   R0                              :
        00000000G   00            01 FB 0018E          CALLS   #1, DBG$NSYNTAX_ERROR           :
                                FED4 31 00195 17$:     BRW     3$                              :
                                  59 DD 00198 18$:     PUSHL   R9                              : 2274
                            20    AE 9F 0019A          PUSHAB  VALUE                           : 2272
                            2C    AE 9F 0019D          PUSHAB  INPUT_DESC                      :
        00000000G   00            03 FB 001A0          CALLS   #3, DBG$NSAVE_BREAK_BUFFER      :
                    4B            50 E8 001A7          BLBS    R0, 21$                         :
                                  62 11 001AA          BRB     22$                             : 2276
                                  59 DD 001AC 19$:     PUSHL   R9                              : 2290
                                  7E D4 001AE          CLRL    -(SP)                           : 2288
                            1C    AE 9F 001B0          PUSHAB  TEMP_DESC                       :
                   7E 00000000G   00 9A 001B3          MOVZBL  DBG$GB_RADIX, -(SP)             : 2289
                            34    AE 9F 001BA          PUSHAB  INPUT_DESC                      : 2288
        00000000G   00            05 FB 001BD          CALLS   #5, DBG$NPARSE_EXPRESSION       :
                    47            50 E9 001C4          BLBC    R0, 22$                         :
                                  59 DD 001C7          PUSHL   R9                              : 2296
                            1C    AE 9F 001C9          PUSHAB  SYMID_LIST                      :
                            1C    AE DD 001CC          PUSHL   TEMP_DESC                       :
```

```
         0000000G  00              03  FB 001CF       CALLS   #3, DBG$NGET_SYMID                      :
                   35              50  E9 001D6       BLBC    R0, 22$                                 :
                                   59  DD 001D9       PUSHL   R9                                      : 2300
                             20    AE  9F 001DB       PUSHAB  VALUE                                   : 2299
                             1C    AE  DD 001DE       PUSHL   TEMP_DESC                               :
         0000000G  00              03  FB 001E1 20$:  CALLS   #3, DBG$NCOPY_DESC                      :
                   23              50  E9 001E8       BLBC    R0, 22$                                 :
                             18    AE  DD 001EB       PUSHL   SYMID_LIST                              : 2303
         0000000G  00              01  FB 001EE       CALLS   #1, DBG$STA_LOCK_SYMID                  :
                                   59  DD 001F5 21$:  PUSHL   R9                                      : 2320
                             24    AE  9F 001F7       PUSHAB  REPLACED_FLAG                           : 2318
                                   7E  D4 001FA       CLRL    -(SP)                                   :
                             28    AE  DD 001FC       PUSHL   VALUE                                   : 2319
                             0C    A8  DD 001FF       PUSHL   12(NOUN_NODE)                           :
                                   68  DD 00202       PUSHL   (NOUN_NODE)                             : 2318
         0000000G  00              06  FB 00204       CALLS   #6, DBG$DEF_SYM_ADD                     :
                   04              50  E8 0020B       BLBS    R0, 23$                                 :
                   50              04  D0 0020E 22$:  MOVL    #4, R0                                  : 2322
                                       04 00211       RET                                             :
                   58        08    A8  D0 00212 23$:  MOVL    8(NOUN_NODE), NOUN_NODE                 : 2326
                               FDFF    31 00216       BRW     1$                                      : 2150
                   50              01  D0 00219 24$:  MOVL    #1, R0                                  : 2331
                                       04 0021C       RET                                             : 2333

; Routine Size:  541 bytes,    Routine Base:  DBG$CODE + 0A3E


; 2217          2334  1 END
; 2218          2335  0 ELUDOM




                                                                  .EXTRN  LIB$SIGNAL

;                                 PSECT SUMMARY
;
;      Name                     Bytes                        Attributes
;
;   DBG$GLOBAL                     48  NOVEC,  WRT,  RD ,NOEXE,NOSHR,  LCL,  REL,  CON,  PIC,ALIGN(2)
;   DBG$PLIT                      407  NOVEC,NOWRT,  RD ,  EXE,  SHR,  LCL,  REL,  CON,  PIC,ALIGN(0)
;   DBG$CODE                     3163  NOVEC,NOWRT,  RD ,  EXE,  SHR,  LCL,  REL,  CON,  PIC,ALIGN(0)
;   .  ABS  .                       0  NOVEC,NOWRT,NORD ,NOEXE,NOSHR,  LCL,  ABS,  CON,NOPIC,ALIGN(0)




;                            Library Statistics
;
;                                             -------- Symbols --------      Pages       Processing
;      File                                   Total    Loaded   Percent     Mapped       Time
;
;   _$255$DUA28:[SYSLIB]LIB.L32;1             18619        78         0      1000        00:01.8
;   _$255$DUA28:[DEBUG.OBJ]STRUCDEF.L32;1        32         1         3         7        00:00.1
;   _$255$DUA28:[DEBUG.OBJ]DBGLIB.L32;1        1545       122         7        97        00:01.9
;   _$255$DUA28:[DEBUG.OBJ]DSTRECRDS.L32;1
;                                               418         0         0        31        00:00.3
;   _$255$DUA28:[DEBUG.OBJ]DBGMSG.L32;1             386         13          3          22            00:00.3
;   _$255$DUA28:[DEBUG.OBJ]DBGGEN.L32;1             150          1          0          12            00:00.3



; Information:  2
; Warnings:     0
; Errors:       0



;                                           COMMAND QUALIFIERS

;       BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS$:DBGATSIGN/OBJ=OBJ$:DBGATSIGN MSRC$:DBGATSIGN/UPDATE=(ENH$:DBGATSIGN)

; Size:         3163 code + 455 data bytes
; Run Time:        00:58.6
; Elapsed Time:    03:15.9
; Lines/CPU Min:     2391
; Lexemes/CPU-Min: 14814
; Memory Used:  260 pages
; Compilation Complete
```

0077 AH-BT13A-SE
VAX/VMS V4.0

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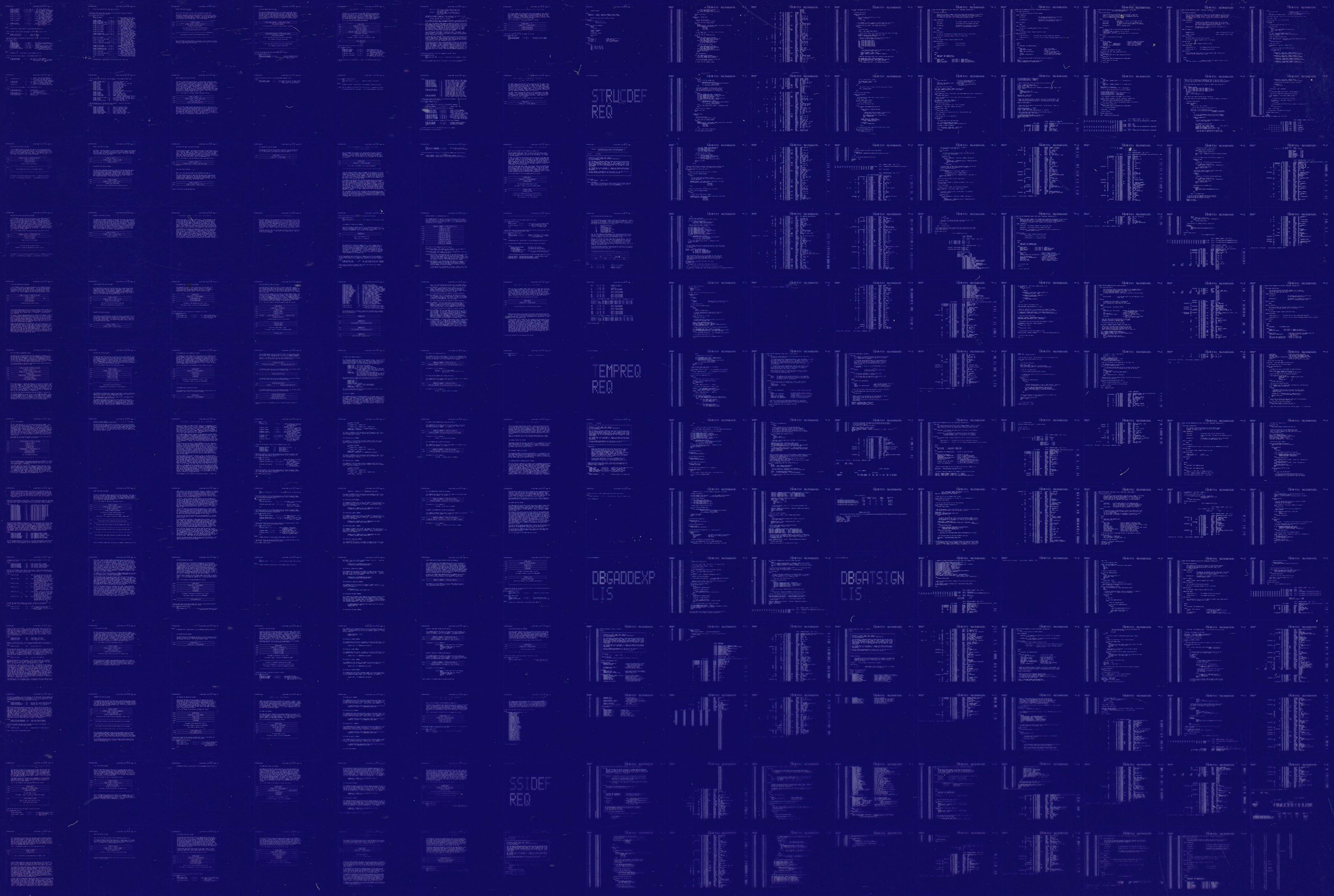

0078 AH-BT13A-SE
VAX/VMS V4.0

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